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Knowledge transfer and innovation in the Finnish forest industry

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Master's thesis in organization and management

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Abstract

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The world of business is more competitive than ever and companies have to adapt and innovate in order to stay ahead of the curve. The need for knowledge and creativity in organizations is an increasingly important challenge. This is true for most industries and certainly for the Finnish forest industry. The purpose of this study is thus to explore how organizations in the Finnish forest industry innovate and how their innovation processes function. Two sub-purposes were also created in order to limit the scope of the study. The first of these sub-purposes is about how companies use knowledge transfer in the innovation process and how the transfer of knowledge enhances the process. The second and last sub-purpose is about if the industry is turning towards the open innovation paradigm. The theoretical framework was developed based on the purposes, which includes the following theoretical sub chapters: knowledge transfer, innovation and open innovation. In order to fulfill the purpose of this study, I chose to use semi-structured interviews as my main source of data complemented by academic literature. The interviews were conducted with five informants in four different companies active in the Finnish forest industry. The results of my study further shows that knowledge transfer plays an integral part of the innovation process in the Finnish forest industry. How the transfer mechanisms for knowledge were used in the innovation process differed to some degree between the different organizations. Furthermore, it can be noted that the innovation processes are moving towards a more open approach, although this is difficult to justify accurately.
Key words: Knowledge management, knowledge transfer, innovation, open innovation
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1. Introduction

A common saying is that knowledge is power. This statement is an indication of why I have chosen to explore knowledge transfer and innovation. I am interested in exploring why and how knowledge can be utilized and used as a tool in order to stay competitive.

The topic is furthermore interesting considering an ever faster changing world where companies have to innovate and adapt in order to stay competitive.

As du Plessis (2007) further states, the strategy of an organization has to be aligned with innovation in order for it to be competitive on the market. The implication is that knowledge transfer supports innovation, which in turn is important for organizations to have as focal points of their strategies in order to stay competitive and thrive.

One could ask why internal knowledge is so important within an organization and why it is so important to share knowledge. According to Prusak and Davenport (1998), the knowledge driven organization is already on the next level when the competitors have reached the same standard in price and quality. Knowledge, in this way, can be seen as a sustainable competitive advantage since material matter can be imitated quickly, which means the value will decrease (Davenport & Prusak, 1998). Knowledge is difficult to copy. The meaning of this is that material assets such as machines and money only bring a temporary advantage, while knowledge, if managed correctly, can bring continuous improvements to an organization. Continuous learning in an organization leads the way for problem solving and leads to a sustainable competitive advantage (Davenport & Prusak, 1998). Closely related to the learning organization is the ability to manage knowledge, which means that organizations in today's turbulent and high-paced world need the ability to manage what they know in order to adapt and stay competitive.

A short introduction of the study and its ramifications will now follow. An industry filled with the above-mentioned challenges is the forest industry. As a prominent part

of Finland's commerce, the nation's wood processing industry is an interesting case regarding innovation and knowledge transfer. This is an industry which is in constant change and which always has to change. According to Ratnasingam et al (2013), there is a need throughout the world for innovation and creativity in the industry concerning sustainable forest products. I have thus chosen to explore innovation in the Finnish forest industry. This chapter will discuss the problem of knowledge transfer (KT), the connection KT has to innovation, the purpose, and the objective with this research paper.

1.1 Problematization

This thesis will be about knowledge transfer processes and the implications it has on the ability to innovate within the industry of wood processing. The field of knowledge management is wide which is why this thesis will be limited to the field of knowledge transfer and the implications it has on innovation. The research question is based on how knowledge transfer occurs within the forest industry in Finland. The most intriguing question might be the question of how knowledge transfer can help an organization achieve competitive advantage. Du Plessis (2007) argues that knowledge management plays a role in innovation in a myriad of ways, e.g. the facilitation of collaboration and the recombination of knowledge. This question of knowledge transfer in innovation is, however, fairly abstract and can thus be difficult to answer.(punkt). As such, the question needs to be separated into issues that are more tangible. These issues will be reflected upon further in the second chapter on the theoretical framework.

An important aspect of knowledge that has to be dealt with in the first place is the question of what knowledge is in itself. A common way of classifying knowledge is by dividing it into tacit and explicit knowledge. Polanyi (1962), for example, separated between explicit and tacit knowledge. According to Grant (2010), information technology has facilitated the analysis of information and explicit knowledge, but that the largest contributor to a learning organization is based on intuition and experience. He also mentions that the most difficult problem within the field of knowledge management relates to the management of tacit knowledge

(Grant, 2010). The focus of this thesis will thus mainly be on how tacit knowledge is transferred. There will, however, also be instances on explicit knowledge transfer since this is a source of innovation as well.

The purpose of the study can be broken down into the following purpose and sub purposes:

- How does knowledge transfer affect the innovation capability of organizations in the Finnish forest industry?
    - In which situations is knowledge transferred in order to facilitate innovation, if any at all?
    - How is knowledge transferred in order to facilitate innovation, if any at all?
    - Are we witnessing a paradigm shift on the Finnish forest innovation arena?

The first question shown above shows the overall purpose of the study while the following three questions acts as sub-purposes of the study. These sub-purposes are used in order to give a more nuanced answer of the main purpose.

The perspective this thesis will take on the subject is from the view of the employees. How they perceive and interpret that they share and distribute knowledge and in which ways this affects innovation. How interactions with the employees' peers gives rise to continuous or groundbreaking improvements. Factors that will be taken into consideration is how the employees perceive that the transfer of knowledge enhances their ability to do their work more effectively and their ability to make constant improvements. The topic that thus will be discussed is one of knowledge transfer and innovation among engineers related to product, process and business development. A quote that emphasizes the problematization of this thesis is one from Pitt and MacVaugh (2008). "The potential benefits of systematic knowledge diffusion and recombination are now acknowledged to render NPD [new product development] less ad hoc, serendipitous and therefore more effective and efficient.". (p. 102)

1.2 Purpose and objective

The purpose of this thesis is to uncover how the processes linked to knowledge transfer enable innovation in the Finnish forest industry. The objective is to gain a deeper understanding of how knowledge transfer occur from the employee's point of view and how they perceive it's effect on the capability to innovate.

The purpose and objective of this paper raises several supplementary questions related to knowledge transfer and the concept of knowledge management. How knowledge transfer enhances the innovation capability within the companies is an interesting question. This is because the concept of knowledge management, as introduced by Nonaka and Takeuchi (1995), largely relates to innovation and the creation of new knowledge through the transfer of knowledge. This is a question that is still relevant today in the sense that the world of business is constantly changing and that one needs to adapt and innovate in order to stay competitive.

How companies can use the knowledge they have and utilize it to the fullest through the sharing of knowledge is another interesting question. If a company utilizes their knowledge to the fullest then every aspect of their business will in theory improve and become even better and more efficient. If everything becomes more efficient then more revenue will follow which makes it possible for a company to expand.

Questions relating to strategy could also be interesting and of great importance. Much of both the academic and general discourse regarding strategy formation is that they should be innovative. Among others, Gary Pisano (2015) advocates for innovation strategies. Innovation and knowledge are closely related which is why this aspect could be given much attention as well.

All of these questions are highly relevant regarding the subject. While there will be aspects of them all, since the fields are overlapping, this thesis will be mostly limited to knowledge transfer and innovation processes.

1.3 Limitations

There are a few more limitations to take into consideration as well. As earlier mentioned will the focus be on tacit knowledge rather than explicit knowledge. The focus will thus be on the relationships between people rather than sophisticated IT-systems. The reason for this is that personal relationships encompasses the transfer of tacit knowledge to a greater extent than IT-systems.

Another limitation is the industry. The chosen industry is the Finnish forest industry which means that other industries may differ regarding the results. The reason for this may be due to the nature of the industry, the industry culture and a need for different kind of approaches regarding innovation compared to other industries.

The last limitation that will be presented is the scope this study has on innovation. The theoretical approach the study takes on innovation is quite broad since the core concept used in this study is open innovation. The open innovation paradigm is arguably still a quite abstract concept which means that this study will restrain from answering questions such as “how does one create a radical innovation?”.

1.4 Definitions

Knowledge can be seen as a very abstract word which is lacking a dominating definition. Since knowledge does not have a dominating definition is only a working definition presented. According to Davenport and Prusak (1998), information is created in the moment the creator gives meaning to data. Knowledge on the other hand can be seen as something broader than both data and information (Davenport & Prusak, 1998). Knowledge is a mix of values, experiences and information in a context (Davenport & Prusak, 1998). Knowledge is something that is derived from and applied in the mind and can exist in the organizations processes, routines and traditions (Davenport & Prusak, 1998). Knowledge is commonly divided into tacit and explicit knowledge. Hislop (2013) mentions that tacit knowledge can be defined as knowledge that is subjective to the individual and that is difficult to codify into explicit knowledge. Common examples of this type of knowledge is how to do

something practical. E.g., one cannot learn how to ride a bike by reading a book. Explicit knowledge on the other hand can be defined as objective knowledge that is possible to describe and express (Hislop, 2013). Explicit knowledge is knowledge that for instance can be transferred through a document or a book. This can also be described as expressible knowledge. A more distinct separation between tacit and explicit knowledge is depicted in *figure 1.* The definition of knowledge this study will assume is thus information connected to an individual's experiences, values and context. In other words information connected to a context which implies that the individual knows how to use the knowledge. A more detailed distinction between the two different forms of knowledge discussed is depicted below in figure 1.

Tacit knowledge	Explicit knowledge
Difficult to codify	Easy to codify
Subjective	Objective
Personal	Impersonal
Dependent of context	Independent of context
Difficult to share	Easy to share

Figure 1: Characteristics of knowledge (adapted from Hislop, 2013).

Knowledge management is in short about the creation and distribution of knowledge in an organization (Nonaka & Takeuchi, 1995). A more elaborate discussion about this topic is presented in the third chapter as a part of the theoretical framework.

Knowledge transfer occurs whether it is managed or not (Davenport & Prusak, 1998). Davenport and Prusak (1998) mentions that knowledge transfer demands two types of actions. The first one is that knowledge has to be presented to a receiver (Davenport & Prusak, 1998). The second is that the receiver has to absorb and understand the knowledge (Davenport & Prusak, 1998). According to Davenport and Prusak (1998), the transfer is thus not complete until the receiver has absorbed the knowledge.

Innovation is in short anything new an organization brings to the market (Johnson, 2001). It involves the creation of new products or services. Chen, Zhu and Xie

(2004) talks about the production system being introduced to a new combination of essential factors of production. In other words, enough is not to simply create a new product or service to be called an innovation. The organization will also have to commercialize the product or process before it can be considered an innovation. A more in-depth view on the area of innovation as a concept will be presented in the third chapter.

1.5 Disposition

The disposition of this study is built up by starting with a presentation of the chosen methodology for the collection of the data that has been gathered in order to make this study. Next follows a presentation of the theoretical framework which this study will be based on. After the theoretical framework is the empirical data presented followed by an analysis of the empirical data. Lastly, a short conclusion of the study is presented along with how the study could have been improved upon and thoughts on future research.

2. Theoretical framework

In this chapter, is the theoretical data that have been used in this study presented. The chapter will start with a short introduction of the Finnish forest industry. The theoretical field of knowledge management as a whole will then be presented, as well as a deeper insight into the field of knowledge transfer and the way it connects to innovation. An introduction to the field of innovation will then follow. The chapter will end with a thorough depiction of the concept of open innovation.

2.1 The Finnish forest industry

2.1.1 Overview

In order to give depth to the purpose of this study it is important to describe the Finnish forest industry and innovation to fully understand the roots of the context. Due to the dependency on water, energy and a functioning forest ecosystem, the industry has traditionally been environmentally sensitive (Toppinen, Pätäri, Tuppura and Jantunen, 2017). According to Rusko (2010), the industry can be described as traditional with products that are low in value adding and expensive to transport. The forest industry does despite this make up 7-11% of Finland's GDP according to Rusko (2010) while being a highly educated country. The industry does also stand for a relatively large share of the Finnish export with more than 20 percent of the country's export (Finnish Forest Industry, n.d.). According to Rusko (2010), several studies on the Finnish forest industry have noted the simultaneous interplay between cooperation and competition (see Lambert & Laurila, 2005, Lamberg & Ojala, 2005, Näsi, Sajasalo & Sierilä, 2001). The main motivation behind this type of behavior among organizations is to improve financial performance by creating greater value through cooperation while at the same time competing with each other (Rusko, 2010). Hansen (2010) notices similar behavior in the Finnish forest industry as does Rusko (2010). Cooperation between citizens in Finland has a long tradition which has created an inherent advantage (Hansen, 2010). This statement can be put in contrast to the more individualistic behavior of American counterparts (Hansen, 2010). The roots of cooperation are thus established to some degree and we can see

that the industry has a long history of cooperation while at the same time being of great importance to the Finnish economy.

Rusko (2010) also mentions that Stora-Enso is the largest paper company in Europe. This statement, among other factors mentioned above, suggests another type of competitive advantage than inexpensive labor. The Finnish forest industry is also international to a high degree. By the end of the 20th century, two thirds of the activities were located outside of Finland (Rusko, 2010). The companies active within the industry may thus be considered multinational corporations (MNCs) which is important to acknowledge when we move on to the chapter on knowledge transfer. Also worth mentioning is the degree of government involvement in the Finnish forest industry. The government is one of the main stakeholders of the Finnish forest industry and affects the development of the industry (Rusko, 2010). The government operates as a stakeholder mainly through ownership (e.g. Stora-Enso) and as public owner of land and forest (Rusko, 2010).

The structure of the Finnish forest industry furthermore encompasses three different branches: the pulp and paper industry, forestry and the wood products industry (Rusko, 2010). Rusko (2010) further explains that raw materials in the form of pulpwood and logs are provided by forestry for the wood products industry. The relatively high-value end products of paper are made possible by the provided pulp material (Rusko, 2010). The essence of the structure of the branches is thus that there is the low-value adding branch of forestry which provides raw materials for the other two branches.

2.1.2 Ownership structure

The general structure of the ownership of the industry has been touched upon above but a more thorough depiction of the ownership structure in the large MNCs will be presented next. The data have been compiled by the author by taking the average of five large Finnish companies involved in the pulp and paper industry. The reason for this is that the data gathered will reflect the ownership structure of the industry as a whole, due to the size of these companies, as well as the organizations included in the study. All the companies had revenues above 1.5 billion euros in 2018. The data

have been retrieved from public financial statements. Worth mentioning also is that the averages are not weighted, i.e. it does not matter how much revenue a company has, as all the companies are calculated as equals.

Depicted in figure 2 below are three different types of ownership classifications. We can see that private investors in the form of financial institutions and households make up the largest part, sector wise. Non-profit organizations, on the other hand, stand for a relatively small part of the shareholders in the companies. Compared to Ruskonen's (2010) statement above, this implies that the government mainly acts as a stakeholder through land ownership rather than shares in the organizations, at least in the larger companies. In the next chart in the top right corner of figure 2 the distribution between Finnish and non-Finnish nationals is depicted. We can see that the distribution between foreign and Finnish organizations and nationals is in favor of the Finns by a small margin. This observation combined with Rusko's (2010) statement, that some two thirds of the industry's activities were located outside of Finland, heavily supports the notion that the organizations within the industry can be seen as MNCs. Regarding the shares and which kinds of organizations and people own them, we can see in the chart at the bottom that Finnish households act as a fairly large shareholder, with 18% ownership of the shares in these companies.

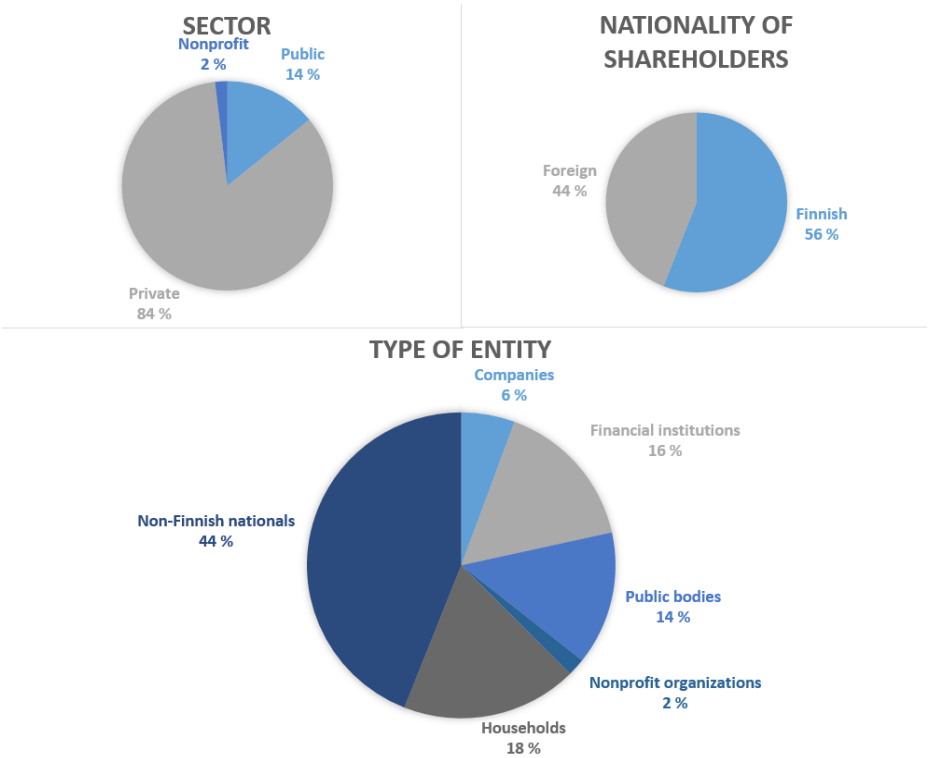

Figure 2: Ownership structure of companies in the Finnish forest industry

2.1.3 Innovation

Climate change and the impact it has on the forest industry is a prominent topic relating to innovation. According to Toppinen et al, (2017), the questions of how to transform into a bio economy and how to make new green initiatives a reality the main challenge for the pulp and paper industry of Europe. This comes with both prospects and concerns. Porter and van der Linde (1995) argues that innovations relating to improved productivity with the same means as earlier will be common which in turn offsets the cost of improving the environmental performance. In other words, it will be very common to improve productivity in order to offset the cost of acting environmentally responsible through innovation. Toppinen et al, (2017) further mentions that the competition will intensify as a result of more constraints, costs, risks and regulations but that more business opportunities will open up at the same time. There is however no consensus from previous research whether environmental performance has a negative or positive effect on firm performance (Konar & Cohen, 2001).

The Forest Cluster Research Strategy (2010) has outlined four different scenarios of operation for the environment for 2030. These scenarios consists of "the Global Bioeconomy", "From Forest To Bioenergy", "Business As Usual" and "Self-Sufficient Soci". This thesis will not go into detail on what the implications of each scenario is. One of the goals however is to put the Finnish forest cluster at the forefront of services and products in the forest industry (Forest Cluster Research Strategy, 2010). Along the lines of the report identified necessary strategic actions are to specialize in the products and solutions that adds the most value based on the business environment of the alternative solutions (Toppinen et al, 2017). The aim is to become global leaders in norms and standardization (Toppinen et al, 2017).

The Finnish forest industry is typically perceived as innovative (Hansen, 2010). This may, to some extent, explain how a low value adding product can make up such a large part of the Finnish GDP. The notion of innovativeness is further supported by Sajasalo (1999), who mentions that part of the success behind the Finnish forest

industry comes from innovativeness in manufacturing among other factors such as access to raw material and cooperation practices regarding marketing. Statistics on productivity also supports this assumption (Hansen, 2010). In 1991 was 2% of the GDP in Finland made up of R&D expenditure (Hansen, 2010) while R&D expenditure rose to 3,47% of the GDP in 2007, according to Official Statistics of Finland (2007). The same numbers were 2,62% in the United States during the same years (National Science Foundation, 2019). As we can see by the data, the United States did not change its R&D expenditure in comparison to the GDP while Finland increased the ratio of expenditure. The increase in R&D expenditure furthermore came as a response to the economic crisis in Finland in the early 90's (Hansen, 2010). It is of course difficult to prove that the success of the Finnish forest industry came as a result of this initiative. It may however give an indication of why Finland is succeeding in the industry and have been able to keep it as a sustainable sector of the Finnish economy. As Hansen (2010) points out, it is difficult to compare two countries since there are many differences between the industries in each country.

2.2 Knowledge Management

The reason why knowledge management might be viewed as such an important component in today's world is because of the societal development. Historically, machines and capital might have been viewed as the crucial resources while today, knowledge might be that resource. Largely because of the demand for higher education among employees but also because of the difficulty of imitating a resource like knowledge. As Dahlander and Gann (2010) points out are professionals looking for portfolio careers rather than a job-for-life. This makes it increasingly difficult to depend on the current employees accessible in the organization since the probability is that they will not stay for the rest of their careers. This in turn means that the knowledge will be lost without management. The interest for knowledge management became large as late as the 1990's. According to Hislop (2013), the interest of the field did explode among academics, consultants and business people in the mid 1990's. Earl (2001) mentions that knowledge management has been seen as a central component in everything from product- and process-innovation to the renewing and adaptation of an organization to decision making. This statement is also supported by Souto (2015), who mentions that knowledge might be seen as a

critical resource based on the effects it has on organizational, process and product innovations. Many organizations have also created groups of interest in order to stimulate the flow of knowledge in an organization (Davenport & Prusak, 1998). The reason behind this has been to improve the socialization between peers and provide the opportunity to exchange ideas. According to Earl (2001), an important aspect of these groups of interest is to connect knowledge with people who has knowledge. The reason why the context of knowledge management is important to present is because it acts as the link, as will be seen, between two seemingly different theoretical areas.

Historically have organizations in a sense been divided into knowledge intensive firms (knowledge-based organizations) and organizations that are not. We may however discard the use of the knowledge-intensive firm in this sense. According to Zack (2003), is it not what the organization produces that defines to which extent knowledge is integrated into an organization. What defines a knowledge-based organization is instead defined by what it does and how it is organized (Zack, 2003). Nordenflycht (2010) talks about knowledge intensity and about to which extent the organization is dependent on complex knowledge. Zack (2003) mentions that there are two important tasks for the knowledge-based organization from a process perspective. These are to create new knowledge and to apply existing knowledge (Zack, 2003). So why does the definition of the knowledge-intensive firm matter? According to Alvesson (2000), the employees are the most important resource in the organization, if not the only one. Capital and machines are often of less importance. The definition of the knowledge-intensive firm will however provide the context for the setting of this study. The reason for this is that the point of departure is that these organizations qualifies as knowledge-based firms. This enables the reader to understand the context and thus the result to a greater extent. Another important aspect of the understanding of the knowledge-intensive firm is to see the benefits of it in the form of targets as applying knowledge and creating new knowledge.

2.3 Knowledge Transfer

Knowledge transfer is at the forefront of this study which is why it demands a proper introduction. Below are three different approaches depicted regarding knowledge

transfer with the last one being the SECI-model where the connection to innovation will be in focus.

2.3.1 Factors affecting knowledge transfer

Gooderham (2007) argues that a firms organizational capabilities, regarding the encouraging of linkages across units and consistency, has to be significantly coordinated in order for successful knowledge transfer to occur. Gooderham (2007) proposes a model which specifies the practices that can be used in order to favor knowledge transfer through the promotion of social capital in MNC's. This theory is thus chosen since it correlates with the studied organizations.

Regarding the transfer of knowledge are there many factors to be taken into consideration. Among these factors are the culture of the organization, structure, behavior among employees, physical surroundings and motivation. Culture can be defined as the way people traditionally think and do things (Linstead, 2004). Earl (2001) mentions that a likely success factor is a culture of support in the pursuit of knowledge-sharing. Also du Plessis (2007) mentions that the creation of a culture that facilitates knowledge creation is of importance in regards to knowledge management. Davenport and Prusak (1998) furthermore mentions different guidelines that dictates how the culture should take form in regards to knowledge. Among others are these guidelines about creating incentives and rewards when it comes to the sharing of knowledge, that management acts by example regarding knowledge-behavior and that management informs why it is so important to share knowledge (Davenport & Prusak, 1998). An important factor that arises in regards of culture is furthermore motivation as we can see. We can see the importance of being collectively motivated as a part of the culture and that it should lay as a foundation of how to think and act. Huang, Chiu and Lu (2013) argues that successful knowledge transfer occurs by the opportunity to share the knowledge which derives from the motivation of doing so.

Closely related to Huang's et al, (2013) thoughts is the opportunity to socialize. This is another important factor when it comes to knowledge transfer in the form of letting people talk face-to-face and change ideas and knowledge among each other. Hislop

(2013) mentions that social interactions between people can be created by providing different forums for this purpose. Earl (2001) on the other hand writes about special design and how both physical and social constructs can prevent people from interacting and changing ideas and knowledge with each other. What is meant by this is that both the physical design, of for instance office spaces, and the structure of the organization can limit the transfer of knowledge and ideas.

The type of knowledge that is shared in different types of social structures are also of importance and has implications on this study. The reason why it is important to consider different types of social structures in this study is because different types of social structures, as will be presented, has different effect on what kind of knowledge that is shared. For instance are informal networks something that occurs almost everywhere. According to Ruona and Blankenship (2009), informal network's purpose is to collect and pass on information. They propose that the type of knowledge that primarily is shared within these networks are book-knowledge and know-who which are easier to share and leans heavily towards explicit knowledge (Blankenship & Ruona, 2009). Project teams are another type of social structure which is of interest in this study. Seeing how much of the engineering field is made up of project based work is this worth to discuss as well. Blankenship and Ruona (2009) argues that project teams often are created in order to solve a specific problem or a specific target. The target can be to create a product, to solve a problem and so on (Ruona & Blankenship, 2009). Blankenship and Ruona (2009) argues that the type of knowledge that is shared within these social structures to a large extent can be classified as object-based and book-knowledge. The reason for this is that a project is focused on one product or one task (Ruona & Blankenship, 2009). This type of knowledge is to a large extent explicit which means that it is relatively easy to transfer. But on the other hand is object-based knowledge to some extent tacit which also has to be taken into consideration when developing strategies for knowledge transfer (Ruona & Blankenship, 2009).

2.3.2 The dynamic capabilities driven model

The dynamic capabilities driven model mainly describes how social capital is built from three different dimensions and how they influence the transfer of knowledge.

The dimensions taken into consideration are relational-, cognitive- and structural social capital. These dimensions are affecting the internal environment of the organization regarding the transfer of knowledge. According to Gooderham (2007), is the degree of relational social capital a direct necessity for successful transfer of 'know-how' in an MNC. These dimensions are furthermore affected by managerial-initiated practices which will be discussed as well. The model does however also consider the external environment in the form of spatial, cultural, and economic and educational distance.

2.3.2.1 Internal environment

To begin with is the relational dimension of social capital about factors affecting personal relationships such as respect, trust and obligations which affects the motivation to share knowledge (Gooderham, 2007). The relational dimension of social capital plays a critical part of when it comes to the sharing of knowledge between teams who do not have related competencies (Gooderham, 2007). According to Bresman, Birkinshaw and Nobel (1999), trust does play a part since different units do not have faith in the others abilities without it which came up as a reason why people do not share knwoledge. By having personal relationships, trust and respect does the motivation to share knowledge increase (Gooderham, Grøgaard & Nordhaug, 2013).

The cognitive dimension of social capital is about providing the foundation for communication through shared interpretations, language and systems of meaning (Gooderham, 2007). Knowledge exchange is in other words stimulated through a sufficient level of trust which comes from a shared 'view of the world' (Gooderham, 2007). As depicted in figure 3 does cognitive social capital not affect the transfer of knowledge directly but it does affect relational social capital which does have a direct impact on the transfer of tacit knowledge or "know-how".

The third and last dimension of social capital is, as earlier mentioned, the structural dimension. This dimension is about the ties that exists between different units in a multinational corporation, how they are configured and whether these specific networks exists or not (Gooderham, 2007). As can be seen in figure 3 does the

structural dimension have an effect on both the cognitive and relational social capital but not on the transfer of knowledge in itself. Sustained social interaction is a necessity for developing and maintaining cognitive and relational social capital (Gooderham, 2007).

2.3.2.2 Management-initiated practices

As depicted in figure 3, management-initiated practices also plays an indirect role in the transfer of knowledge. That is practices that requires active management. To begin with does transmission channels set up by the management affect the degree of structural social capital since different units must have specific ways of reaching out and get in contact with one another. According to Gupta and Govindarajan (2000), knowledge outflows do improve from a subsidiary to its peer subsidiaries through the reliance on formal mechanisms such as liaison personnel and permanent committees.

Socialization mechanisms is the second management-initiated practice that can be found which affects the cognitive social capital dimension together with motivational mechanisms. Socialization mechanisms refers to the same type of phenomenon as was be seen in the Nonaka and Takeuchis SECI-model earlier depicted but with a different aim. Socialization mechanisms are about creating a corporate culture that is independent of educational, economic or cultural background and embraced by all employees (Gooderham, 2007). What I mean by it being the same type of phenomenon as in the SECI-model is that people need to have the opportunity to socialize and get to know one another. They differ since the goal of the SECI-model is to transfer tacit knowledge in this context while the goal of the socialization process is to learn about other people in the organization and get rid of prejudice. The SECI-models aim is thus to transfer knowledge directly while Gooderham's aim regarding socialization mechanisms is to support the transfer of knowledge. Gooderham (2007) mentions that one way to go about creating socialization mechanisms is to have diversity training in order to get rid of prejudice and becoming aware of differences among employees.

The last of the management-initiated practices that has an effect on the internal environment is motivational mechanisms, according to Gooderham. Motivational mechanisms are different from socialization mechanisms since they encompass tangible incentives (Gooderham, 2007). The vision of an MNC is underscored and objectified through rewarding mechanisms that have an effect on the behavior regarding transfer or integration of knowledge (Gooderham, 2007). Cognitive social capital will benefit linearly through the use of motivational mechanisms designed to benefit the sharing of knowledge between the parent company of an MNC and their subsidiaries (Gooderham, 2007).

2.3.2.3 External environment

When it comes to the external environment are there three dimensions that have been taken into consideration with implications on the transfer of knowledge in this model. These dimensions are the physical distance, the cultural distance and lastly, the economic and educational distance. Compared to management-initiated practices, which are seen as factors that can be influenced by managers, are these factors rather fixed (Gooderham et al, 2013). As with social and motivational mechanisms does cultural, economic and educational distance affect the cognitive social capital. Cultural distance is about a shared language and shared interpretations which makes it costly for an organization to move out of their cultural proximity area (Gooderham, 2007). According to Gooderham (2007), aspects in the creation of cognitive social capital does become increasingly more challenging to obtain with increasing cultural distance. Bresman et al, (1999) further argues that cultural distance is one of the reasons why there is a lack of cognitive social capital in the early acquisition stages. Cognitive social capital formation also appears to be significantly affected by economic distance (Gooderham, 2007). This may however be because of a high educational level rather than high income per capita since high educational levels usually correlates with high income per capita (Gooderham, 2007). Gupta and Govindarajan (2000) mentions that it seems to be more difficult to effectuate the knowledge flow in a subsidiary acquired in a country with high income per capita than in a county with low income per capita. The reason why this may be the case is because the “not-invented here” syndrome appears to kick in when the subsidiary views itself as on par regarding educational levels with the parent company

(Gooderham, 2007). According to Gooderham (2007), a larger spatial distance leads to a weaker degree of structural social capital. The reason why geographical distance acts as a barrier, according to Gooderham et al, (2013) is because it is costly and time consuming to organize and execute long-distance traveling.

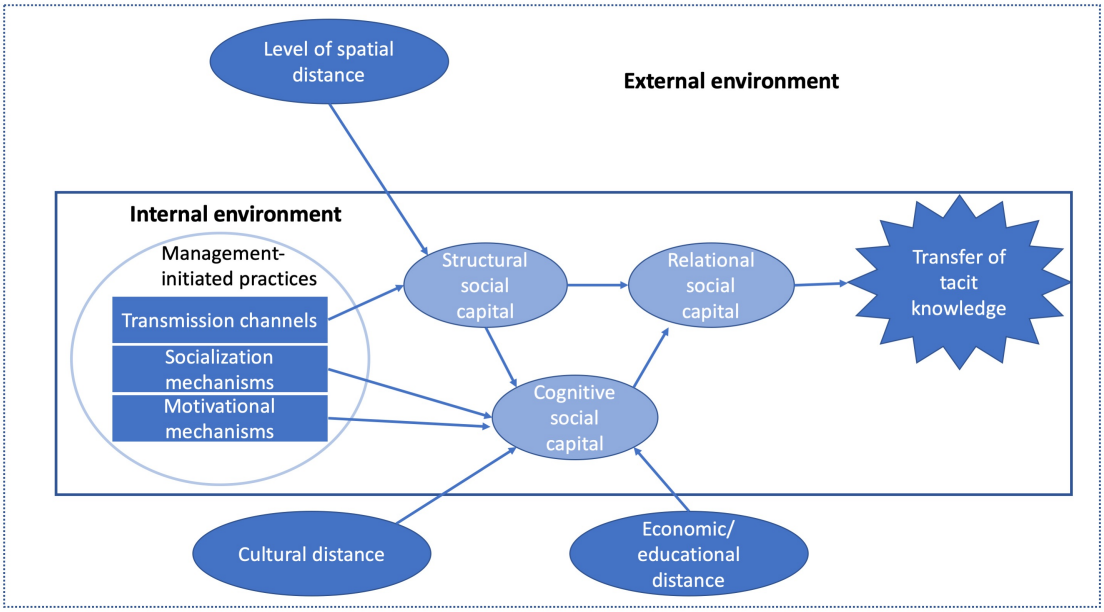

Figure 3: The dynamic capabilities driven model (adapted from Gooderham, 2007).

The dynamic capabilities driven model proposed by Gooderham (2007) is used in this study in order to analyze the transfer of knowledge in the Finnish forest industry. The reason for this is that the model captures the knowledge transfer activities that takes place in a corporation with emphasize on a multinational corporation (MNC).

2.3.3 The SECI-model

The link between knowledge transfer and innovation is, as earlier mentioned, the main focus of this study, how one create the settings to facilitate innovation through the sharing and transfer of knowledge. So, what is the link between knowledge management and innovation then?

The most prominent advocate for the creation of knowledge (innovation) through knowledge transfer is arguably Nonaka and Takeuchi through their book "The Knowledge Creating Company" from 1995. The SECI-model proposed by Nonaka

and Takeuchi (1995) is about the creation of knowledge through the transfer of knowledge. The name SECI is an abbreviation of the four different modes or processes that takes place in order to create knowledge. The modes that takes place are socialization, externalization, combination and internalization. This model differentiates between two different forms of knowledge. These forms are tacit and explicit knowledge. Depicted in *figure 4* is the SECI-model and the four different modes of knowledge conversion which will be explained in the coming paragraphs.

The socialization mode refers to the conversion of tacit knowledge (Nonaka & Takeuchi, 1995). This process is about the transfer of tacit knowledge to other employees within the organization. This consists of sharing and transferring mental models, images and technical abilities (Nonaka & Takeuchi, 1995). This is supported by du Plessis (2007) as well. According to du Plessis (2007), management can create the correct circumstances and environment for tacit knowledge exchange to occur. This can be done through the creation of communities of practice regarding areas of innovation, but also through other platforms (du Plessis, 2007). According to Nonaka and Takeuchi (1995), it is problematic to share tacit knowledge without having some form of shared teachings. The meaning of this is that it becomes problematic if there is a lack of associated feelings connected to the knowledge or if the knowledge is not shared within a context. A concretization of this process could be to learn how to make a bread. The socialization process is about observing and imitating how the dough is kneaded, formed and so on in order to gain the correct taste, consistency and so forth. This represents the transfer of mental images and models among the employees.

The conversion of tacit knowledge to explicit knowledge is known as externalization (Nonaka & Takeuchi, 1995). This mode is about the conceptualization of ideas through, for instance, models and concepts in order to make it possible for other people to understand the knowledge and thus make it transferrable. du Plessis (2007) suggests that tacit knowledge can be captured through IT-platforms such as discussion data bases. She mentions that the conversion of tacit knowledge to explicit knowledge is valuable if the knowledge is stored in some way since it can be retrieved and used later (du Plessis, 2007). Of the four different processes of conversion is this one regarded as the key for the creation of new knowledge,

according to Nonaka and Takeuchi (1995). The reason for this is that new explicit concepts are created in the process of speaking figuratively of something. Once the new knowledge has been explicitly expressed should there be no inconsistencies or similar left in the expressed model, concept etc. (Nonaka & Takeuchi, 1995). The explicit knowledge should in other words be fully understandable and expressed in a way that others can understand the idea. If we go back to the example of making a bread would this process be about creating a recipe of the bread. A recipe that states the ingredients, how the kneading should be done, at which temperature the bread should be baked at and so forth.

The combination mode refers to the sharing and transfer of explicit knowledge (Nonaka & Takeuchi, 1995). According to Nonaka and Takeuchi (1995), this process is about implementing explicit knowledge in knowledge systems. According to Nonaka and Takeuchi (1995), this process is about systematizing explicit knowledge and combining it with a knowledge system and share through different media such as phones, documents and meetings. Nonaka and Takeuchi (1995) mentions that creative ways of using IT-systems facilitates the transfer of explicit knowledge. In the example of making bread, this process would be represented by sharing the recipe with other people through IT-systems.

The final process, known as internalization, is about converting the explicit knowledge into tacit knowledge (Nonaka & Takeuchi, 1995). According to Grant (2013), knowledge is converted from explicit knowledge through routines and intuition; these are also the drivers of this process. The internalization process is about transferring the explicit knowledge to the individual which implies that the spiral of knowledge creation starts again. Nonaka and Takeuchi (1995) note that the internalization of knowledge is about embodying the explicit knowledge into tacit knowledge whereby the knowledge becomes an asset for the organization. The reason for this is that the knowledge can then be used in theory as well as in practice. The example of how to make bread could in this process be represented by other people being exposed to the recipe that was shared in the previous process and trying to recreate the bread themselves.

Figure 4 visualizes how the SECI-model works in theory. As mentioned above, the knowledge creating process begins through socialization where tacit knowledge is shared among employees through, for instance, discussions, metaphors and analogies. As can be seen in figure 4, discussion and the sharing of ideas are a central part when trying to convert tacit knowledge into explicit through models, concepts and manuals and so forth. This leads to the third mode where the explicit knowledge is further shared through IT-systems, databases and so on. In the fourth and last mode, Nonaka and Takeuchi (1995) suggest that internalization comes about through learning-by-doing. Hence, the knowledge does become an asset to the organization when it is applied in services and products. The spiral of knowledge is then completed and can continue and become an integrated function of the organization where the created knowledge loops through the mentioned modes.

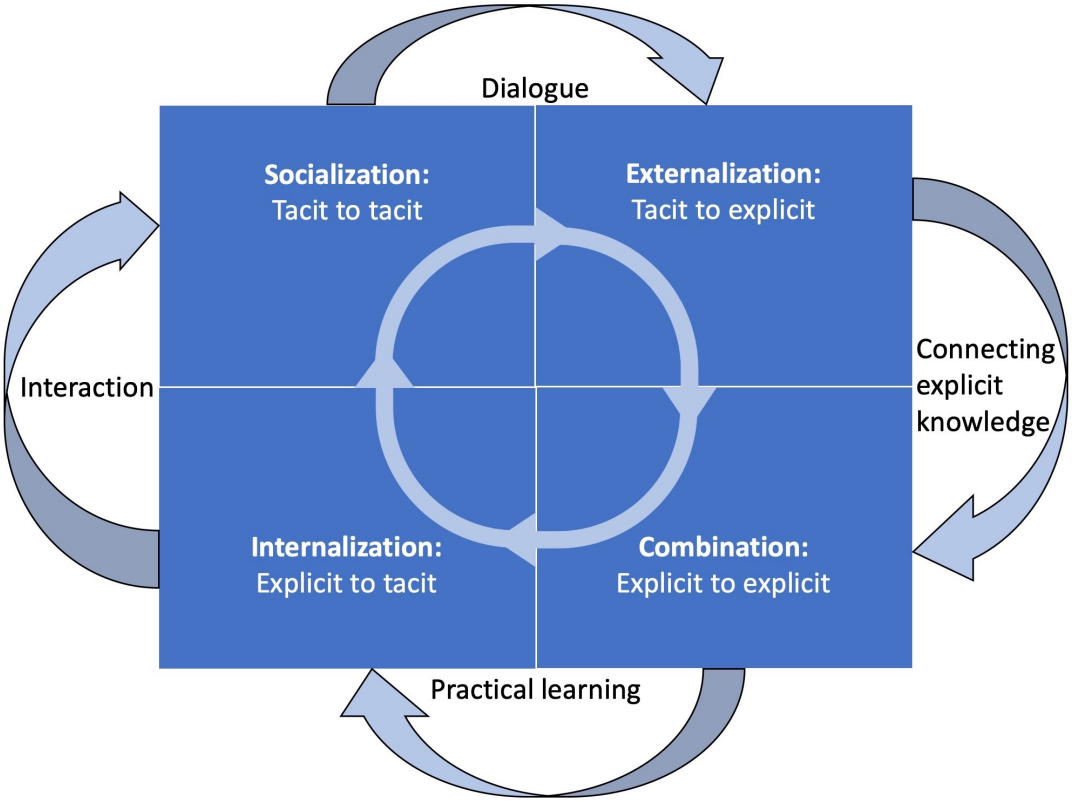

Figure 4: The spiral of knowledge (adapted from Nonaka & Takeuchi, 1995).

2.4 Innovation

Innovation is, similar to knowledge management, a very broad and abstract field. In this part of the theory, the landscape of innovation is presented followed by a

presentation of the open innovation paradigm. In the discussion of innovation, it is important not only to highlight the processes of innovation management, but also the different categories of innovation that may be the outcome or the target. The reason being it may explain at which stage different types of innovations are necessary or more beneficial to invest in, which benefits one of the sub-purposes of this study. The result can of course only be confirmed if it is proven that the Finnish forest industry is at the forefront of innovation.

Pisano (2015) suggests that characteristics of innovations can be outlined along two dimensions, the degree of new competencies involved and the degree of a new business model involved. A matrix consisting of four different categories of innovations is thus created as depicted below in figure 5.

The first, and maybe, the most common type of innovation is routine innovation. This sort of innovation builds on the existing knowledge and utilizes the business model already in existence (Pisano, 2015). It can be compared to "the next generation" type of products and processes and continuous incremental improvements such as the latest Iphone or the the next BMW M3. According to Rahman, Zakir and Chin (2017), innovations with these characteristics have relatively low, if any, impact on society or the markets currently available. This means that the markets will not change in-line with consumers and so on. Martínes-Ros and Orfila-Sintes (2009) further argue that the results of incremental innovations are more predictable in the process of improving and adapting a current technology.

Disruptive innovation, however, has to use a new business model (Pisano, 2015). It does however not have to use radically new technology or competence (Pisano, 2015). According to Christensen, Raynor and McDonald (2015), disruptive innovation takes a foothold from one of two places, a new market or the low-end market. Low-end market means a neglected market which does not appeal to producers since they are focusing their resources and products on the more lucrative high-paying market. The first of the two footholds concerns the creation of a market where there is none (Christensen et al, 2015). AirAsia is good example for this since they did not invent aircrafts or holidays, but they did still create a new market.

Instead they opted to recreate their business model in order to make flying affordable for bottom earners in Malaysia. They did this by re-inventing the business model for the airline industry in a specific geographic area. The second footholds comes from, as earlier described, investing in low-end and unserved markets (Christensen et al, 2015). This means that the products are sold in small quantities at inception until the quality has caught up with alternatives (Christensen et al, 2015). An example of this is Apple's Iphone (Christensen et al, 2015). It was not a disruptive innovation in regard to the mobile phone but to the computer because of its easy access to the internet and thus created a new market of internet users (Christensen et al, 2015).
On the other end of the spectrum we find radical innovation. According to Pisano (2015), radical innovations involves new technical competencies but not a new business model. That is, the new technological competencies can be applied in the same setting as earlier and thus fit in the existing business model. These innovations can transform or create entire new markets because of the radical changes in the product, process or service (Leifer, McDermott, O'connor, Peters, Rice& Veryzer, 2000). Radical innovation can furthermore be described as breaking with current practices through the use of new knowledge which creates revolutionary and fundamental changes in the technology (Dewar & Dutton, 1986). E.g. the creation of the mobile phone, the consumers were already there and the new technology were easily aligned with the existing business model but it required new technical knowledge in order to go from wired phones to mobile phones. In essence, radical innovation is about making a familiar product, service or process either significantly cheaper, perform significantly better or making it bring unpresented performance features (Leifer et al, 2000).

The final innovation category in this matrix is called architectural innovation. This innovation type is the combination of a disruptive business model and the utilization of disruptive technical competencies (Pisano, 2015). This means that an organization has to find a new way to the market with a "new-to-the-world product". According to Henderson and Clark (1990), architectural innovation is about the reconfiguration of existing technologies in a new way. Sub components in an innovation can change which may lead to new applications of the innovation but the core components stays the same (Henderson & Clark, 1990). An example of an architectural innovation is the Walkman from Sony. The reason for this is that the technology behind it already

existed in the form of cassette players. The existing technology was put together in a new configuration which created a portable device where a person could listen to music on the move.

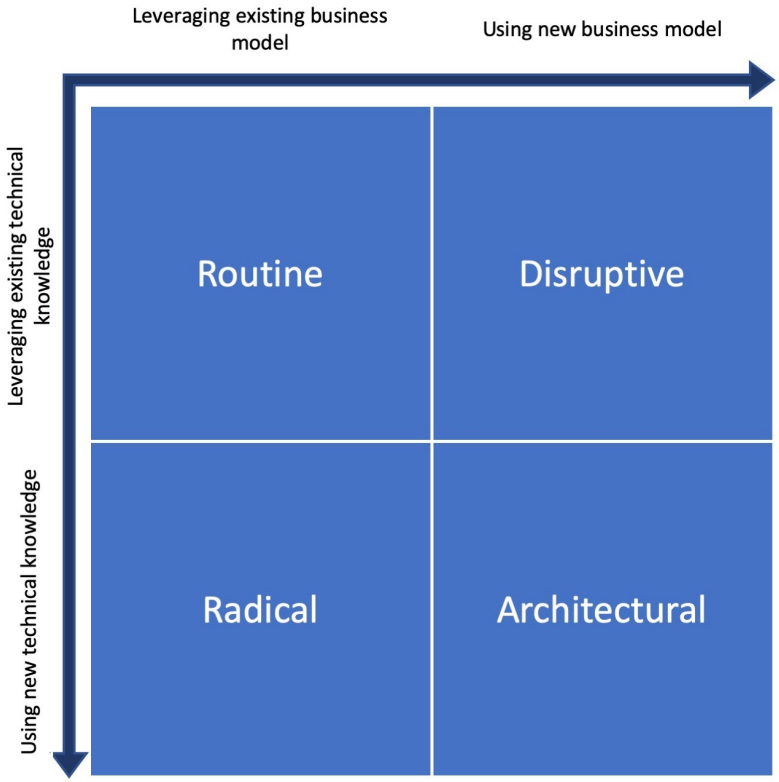

Figure 5: Landscape map of innovation (adapted from Pisano, 2015)

2.4.1 Open innovation

Innovations have become increasingly difficult to internalize in organizations (du Plessis, 2007). Organizations have increasingly changed the way new products and services are brought to the market by a shift in the approach to innovation. A shift which is changing from internal R&D operations to external collaborators. This shift can be seen as a shift from the closed innovation paradigm to the open innovation paradigm (see Chesbrough). Why it is then important to bring up this paradigm shift from closed to open innovation in a study on the Finnish forest industry? The reason why this paradigm shift is so important to discuss is because of the differences in the way innovations are brought to life in organizations which is seemingly more efficient.

Henry Chesbrough might be seen as the initiator of the open innovation paradigm. According to West and Bogers (2017), open innovation has its beginnings in Chesbrough's (2003) discussion about how other firms might apply a managerial phenomenon. So what is the open innovation paradigm and how did it come about? Chesbrough (2006) expresses open innovation as expanding the markets for the use of innovation externally and accelerating internal innovation by purposeful out- and inflows of knowledge. Open innovation is based on the thought that an organization should use external as well as internal sources of knowledge to innovate and to reach the market. Chesbrough (2003) bases his case for a shift to the open innovation paradigm on close observations on a few different cases. Among them are companies such as Xerox, IBM and Intel. Chesbrough (2003) brings up the limits and achievements of the closed innovation paradigm and builds a case for the shift to the open innovation paradigm by analyzing these companies. Faems (2008) mentions that some managers even considers this paradigm as a necessity for competitive advantage rather than a competitive advantage on its own. This supports the thought that open innovation is not only a fad but a way of dealing with innovation that might be here to stay.

In order to understand the open innovation paradigm, it is necessary to briefly review the so-called closed innovation paradigm in order to recognize the roots and changes towards the open innovation paradigm. The reason for this is that changes in the knowledge landscape has to be recognized in order to understand the open innovation paradigm. Chesbrough (2003) describes the closed innovation paradigm from the standpoint of the availability of knowledge and skilled people. A growing number of university graduates, and thus increasing knowledge becoming available, leads to companies increasing the resources they apply on their own R&D (Chesbrough, 2003). The thought was to hire the best people, provide them with the best facilities and equipment, and leave them alone. According to Chesbrough (2006), the closed innovation process is about the use of an in-house R&D department or organization which develops the products that the firm sells and distributes. Centralized, internal R&D was at the core of the logic behind the closed innovation paradigm (Chesbrough, 2003). This in combination with more knowledge available lead to the formation and expansion of many famous labs such as Xerox

PARC and the T.J. Watson Laboratories at IBM (Chesbrough, 2006). This proves there was only one place for ideas to emerge and one place for ideas to reach the market, namely the individual company. This era of closed innovation is also known as the golden age for internal research and development (Chesbrough, 2006). By having the best people and the best gear, one was most likely to succeed and reap the benefits of the innovations by making groundbreaking discoveries within the firm and being able to commercialize them. A consequence of aligning innovation in this fashion is thus the inevitable spillovers of R&D (Chesbrough, 2006). This was regarded as cost of doing business (Chesbrough, 2006). The reason for this is that there only is one path in and one path out for the inventions and ideas emerge. The implications of the single path to the market was that spillovers from R&D were put on the shelf and underutilized. Another consequence of the central R&D lab was that the constant pressure of delivering short-term financial gain led to the employees in these dedicated innovation centers to opt for routine innovations on existing products (Leifer et al, 2000). The reason being that focus was always on maximizing short-term financial gain which stood in the way of high-risk projects that took longer to complete (Leifer et al, 2000). The framework of the closed innovation paradigm that have been laid out above lead us to the open innovation paradigm with its changes in the knowledge landscape and breaking of boundaries within the firm.

Chesbrough (2003) describes the open innovation paradigm as a contrast to closed innovation. Where R&D is at the core of closed innovation, it becomes a part of a larger entirety in open innovation. The role of R&D has come to change as a part of the changing knowledge landscape. Research and development are treated as an open system in the open innovation paradigm (Chesbrough, 2006). Even the most sophisticated R&D organization has to understand how to leverage and use external sources of knowledge and ideas as a part of the core process of innovation (Chesbrough, 2006). The reason for this is that this approach assumes knowledge is widely distributed (Chesbrough, 2006). The reason why research and development can be thought of as one part of many instead of the key component, as in the closed innovation paradigm, is because the ideas for an innovation can come from anywhere as depicted in figure 6. Ideas do not have to be developed and created by the same firm that commercializes them. Chesbrough (2003) mentions that external ideas and paths to the market becomes as important as internal because of this approach. This

means that the R&D has to be the broker of knowledge instead of only including knowledge generation (Chesbrough, 2003). In other words, the internal R&D is still important but has to have the capability of evaluating and identifying the external knowledge in order to make it useful. Company strategies change faster than the rhythm of basic research which means that companies should not and cannot wait for internal tech to arrive (Chesbrough, 2003). They should instead outsource innovation to someone else (Chesbrough, 2003).

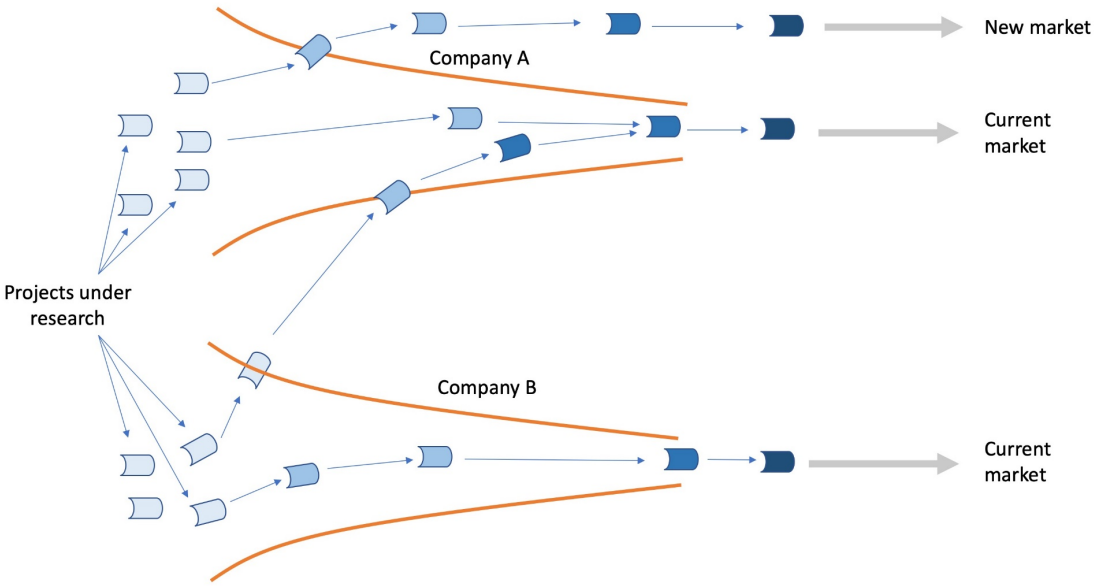

Figure 6: The knowledge landscape in the Open Innovation paradigm (adapted from Chesbrough, 2003).

Depicted above in figure 6 is the knowledge landscape of the open innovation paradigm. It assumes that ideas can and should emerge both inside and outside the firm. In figure 6 are two companies depicted within the orange lines, Company A and Company B. Research projects that are only at the beginning stages of development are depicted on the far left, and might only be regarded as ideas at this

stage in the companies. As these research projects evolve through the companies, they reach the stages of development and, eventually, commercialized products once they hit the market on the far right side in figure 6. The differences towards the closed innovation paradigm can be seen in figure 6 where research projects reach other markets than the ones they originally were developed for. As seen in figure 6, a research project from Company B can move to Company A, through various arrangements, where it is further developed and commercialized for A's current market. We can also see that it is possible for a project or idea, that otherwise would have been stacked on the shelf, to reach an entire new market. This occurrence is depicted in the top of figure 6. Chesbrough (2003) argues that the quality and availability of external ideas has led to this opportunity of using ideas from the outside of the firm.

2.4.1.1 Inbound vs. outbound open innovation

An approach that can be taken in order to understand open innovation in more depth is by comparing four different types of openness and looking at open innovation as a continuum rather than as binary. These different types encompass two different types of outbound innovation in the form of revealing and selling and two different types of inbound innovation in the form of sourcing and acquiring (Dahlander & Gann, 2010). As can be seen in figure 7 below, these characteristics create a matrix of different types of open innovation.

	Inbound	Outbound
Pecuniary	Acquiring	Selling
Non-pecuniary	Sourcing	Revealing

Figure 7: Different forms of openness (adapted from Dahlander & Gann, 2010).

To begin there are outbound non-pecuniary innovations on how internal resources are revealed to the external environment (Dahlander & Gann, 2010). It relates to how a firm lets the external environment be aware of the internal resources without

getting direct financial benefits from it (Dahlander & Gann, 2010). One could in turn ask why this approach to innovation would be beneficial. According to Henkel (2006), the explanation is that firms opt to reveal selective internal resources in order to evoke collaboration. Dahlander and Gann (2010) also mention that firms can fail to bring enough resources from the external environment and becoming too obsessed with ownership for the innovation to be ready for commercialization. There are obviously disadvantages to this type of innovation approach as well. Helfat (2006) mentions that the difficulty in revealing internal resources is to capture the accrued value from such an action. According to Dahlander and Gann (2010), the question of which resources to reveal to the external environment is another challenge. Especially when one compares a large company to a smaller company it becomes evident that the larger of the two have the resources to structure a process around whether to disclose the information or file a patent while the smaller may lack those resources (Dahlander & Gann, 2010).

The second type of outbound innovation is referred to as selling and involves economical terms between the different parties. It is about licensing out or selling inventions to other firms in order to commercialize those (Dahlander & Gann, 2010), e.g. spillovers from internal R&D activities are available to find their way to the market by being licensed or sold to firms whose business models it might fit. Dahlander and Gann (2010) mentions that investment in R&D can be more fully leveraged by licensing or selling [inventions and patents] through partnerships with actors who wants to bring inventions to the market. Disadvantages of this type of openness can come in the form of a ‘disclosure paradox’. A ‘disclosure paradox’ occurs when a potential buyer of a license shows interest towards an inventor and the inventor has to reveal some information to the licensee (Dahlander & Gann, 2010). This leads to a possibility where the licensee receives the information without paying for it and might thus steal the information (Dahlander & Gann, 2010).

Inbound innovation that revolves around a non-pecuniary relationship is referred to as sourcing. It is about external sources of innovation and how firms can use those (Dahlander & Gann, 2010). Before starting internal R&D activities, firm scan the external environment for available ideas and technologies (Chesbrough et al, 2006). If ideas are available then firms will use those (Dahlander & Gann, 2010). Dahlander

and Gann (2010) further mentions that it may be possible to create profits from external ideas depending on whether firms are able to create synergies between internal processes and external ideas. It is about leveraging other's discoveries (Dahlander & Gann, 2010).

The second type of inbound innovation involves economical terms between different parties and is referred to as acquiring. As the name suggest is it about acquiring input from the marketplace for the innovation process (Dahlander & Gann, 2010). Compared to outbound, pecuniary innovation can be understood as the opposite. It is about licensing-in expertise from the outside (Dahlander & Gann, 2010). It is also noted that expertise is needed in order to acquire the correct ideas (Dahlander & Gann, 2010).

2.5 Conclusion

In this chapter, a short introduction of the Finnish forest industry has been presented. The conclusion is that there is support for the industry of being innovative. Furthermore have the main concepts of knowledge transfer and innovation been given an introduction. Regarding knowledge transfer has a deeper focus been put on factors affecting the transfer of knowledge through the depiction of the SECI-model and the capability driven model. Regarding innovation, the concept of open innovation has been given a thorough depiction as well. In the next chapter is the empirical data that has been collected through interviews reviewed.

3 Research method and data

This chapter will start with the methods chosen for achieving the purpose of this study. The process of collecting data will then be presented followed up by the chosen method for analysis and ethical considerations. Lastly, contingent method problems will be discussed.

3.1 Selection of data

To begin with, this study can be categorized as explanative. According to Björklund and Paulsson (2003), this means that a study is trying to create deeper understanding and knowledge by explaining and describing. The reason why it has been decided to use an explanative study format is thus because the topics already has been researched to a large extent. Another point of view that can be said about this study is that it is deductively executed. This means that a hypothesis is created based on theory which is then verified by the empirical data (Björklund & Paulsson, 2003). This thesis will thus present the theory before the empirical data. The questions that are used during the interviews are furthermore based on the theory. The reason for doing a deductive study is the short time frame regarding this study and that a study like this in regards to the topic needs a thorough base to approach from.

As a method for the selection of data, is a large share of the data presented in this study based on scientific literature. The literature that will be used in this study is collected from scientific books and journals, also known as secondary data. Other forms of secondary data that are relevant will be used as well (e.g. Harvard Business Review etc.). An important aspect to take into consideration about the use of secondary sources is that they are not angled, restricting the point of view or

otherwise compromises an objective point of view on the matter at hand (Björklund & Paulsson, 2003). With this in mind is the theoretical chapter trying to take a broad as possible perspective on the topics in order to minimize the risk of angled information by including differentiating sources.

As the other main source of data is this thesis using empirical data in the form of semi-structured interviews. This type of data, also known as primary data, can be categorized as a dialog through telephone as well as through e-mail (Björklund & Paulsson, 2003). Different types of interviews are structured interviews, semi-structured interviews and unstructured interviews. A structured interview is about following a set of pre-written questions (Björklund & Paulsson, 2003). Bryman (2002) mentions that this type of interview often consists of closed questions and that they are of most importance in quantitative research. Semi-structured interviews are about sub-topics that are pre-written and are brought up when suitable depending on the informants' answers (Björklund & Paulsson, 2003). Bryman (2002) mentions that a semi-structured interview often is approached through an interview-guide, which is a set of pre-formulated questions, which can contain relatively specific questions. This means that the informant will have large freedom when it comes to formulating answers (Bryman, 2002). The interview guide is more of guidelines which means that all questions in it does not have to be asked. For example, in case it does not relate to answers from the informant (Bryman, 2002). Lastly are unstructured interviews more like a normal conversation (Björklund & Paulsson, 2003).

The method that will be used in the interviews conducted in this research will be semi-structured. The reason for this is that it gives the informants much freedom to describe processes and relationships which is an important aspect regarding the results of this study. This form of interview creates the possibility to gain answers on how the employees feel and perceive things without losing focus on relatively specific areas. This type of interview also gives the control to the interviewer which is needed since relatively specific areas have to be discussed. The empirical data will consist of six interviews in the Finnish forest industry. The informants will consist of employees related to manufacturing, product and business development.

It would be possible to use unstructured interviews in a study like this as well. The reason why semi-structured interviews have been preferred is because they, unlike unstructured interviews, have the ability to encompass all the topics that has to be discussed. A risk with unstructured interviews is that it is easy to follow in the wrong path. This in turn would affect the validity of a study. According to Bryman (2002), it is decisive if the interviewer gives room for flexibility regarding the informants and that data about how the informants perceive their world is collected. This aligns with the purpose of this study in the sense that this thesis objective is to study how the employees in the forest industry perceive their world.

3.2 Method of analysis

The method of analysis of the empirical data is narrative. Narrative analysis is a course of action in analyzing data that easily can be influenced by the informants' events and values which may appear while talking about their lives (Bryman, 2002). The reason behind this approach is thus that the answers given by the informants may very well be in the form of examples of events that has taken place in their own lives and concretized through stories of their own. The answers are thus most of the time subjective to some extent which is something that is taken into consideration while analyzing the empirical data.

Another part regarding the analysis is codification of the empirical data. In comparison to quantitative data is there no specific way of codifying qualitative data (Bryman, 2002). There are however factors to take into consideration and to be aware of while performing an analysis on empirical data. Bryman (2002) mentions that qualitative material has the risk of losing its context in the stage of codification. The essence of the codification is thus to be aware of taking words out of context and draw conclusion on material that is analyzed in the above mentioned way. The codification was done by first transcribing the interviews. The second step was to find connections, patterns and differences between the interviews. This was done through notes where parts of the interviews was emphasized and thoroughly compared. These conclusions then stood as the basis of the analysis.

3.3 Practical approach

The thesis was initiated by looking up relevant studies regarding the areas which were going to be explored. These studies set the basis of off which the theoretical framework was created. The search engines primarily used was Google Scholar and EBSCOhost. Other sources of secondary data was found in the libraries of Åbo Akademi University in the form of books which were not found through Google Scholar. The reason that these databases were used in the search of data was that they provided reliable sources of information which furthermore could be used in the creation of the theoretical framework.

While building the theoretical framework were several organizations from the Finnish forest industry contacted to look for interest regarding participation in interviews. Seeing how the topic of innovation is quite narrow regarding processes were some problems encountered in the pursuit of participants in the interviews. The reason for this was that the companies wanted specific persons with knowledge on the innovation processes to participate in the interviews in order to give correct information. Since these people are representing a small part of the organizations it lead to considerable more work in order to gain enough participants. The people who were contacted were in positions related to either innovation or business development. All of the people contacted held a senior position at the time of the interviews.

After many calls and e-mails through various personal networks were enough people found in order to complete the interviews. The first four interviews took place on 17th, 25th and 27th of June as well as 2nd of July. The last interview took place on the 4th of November. Most of the interviews took place in the greater Helsinki area at respective company's office. The interviews were furthermore recorded on a smartphone where after they were transcribed. All of the interviewees are anonymous as it makes for a more objective study.

In total, 15 people in various organizations were contacted, either through e-mail or phone. Of these 15 people contacted, eight responded. Of the eight respondents were

five able to participate in an interview. Reasons for not participating were a lack of time and being in the wrong position to give adequate answers on the research topic.

3.4 Ethical considerations

When it comes to qualitative research are ethical considerations an important aspect. This is something that has been taken into consideration while conducting the study. Regarding a study like this may the important questions refer to the ones of anonymity, information requirement and confidentiality requirement. Anonymity considers that the informant knows that they have the right to be anonymous during the interview, in the transcriptions of the interviews and in the thesis itself. Closely related to anonymity is the General Data Protection Regulations (GDPR) which is another factor that has been taken into consideration. Also closely related to the GDPR is the question of confidentiality requirement. This question entails the interviewer to store personal information in a way that is secure and do not leave access to unauthorized people. According to Bryman (2002), the information requirement is about the informant's right to know what the purpose of the study is and that they have the option to quit participating at any moment. This is important in regards to questions or dialog that are related to confidential information and that they have the option to not answer the question at hand. These are the ethical questions that first and foremost has been taken into consideration during the writing of this thesis.

3.5 Method problems

A good approach in determining flaws and problems regarding a study in the context of its methods can be taken from the three words validity, objectivity and reliability. These measurements can be seen as a measure of the reliability of the study, according to Björklund & Paulsson (2003).

Validity refers to which extent the study studies what is set out to be studied (Björklund & Paulsson, 2003). In other words, it is a measure to which extent the purpose of the study has been reached. Björklund and Paulsson (2003) also mentions that validity can be seen as a measurement of the credibility of a study. This is

something that has to be taken into consideration. A practical way of making validity as high as possible in the planning stage might be to have well-structured questions that aligns with the purpose by understanding the theory very well and the industry/ part of organization in which the study takes place. Some difficulties encountered during the interviews were lack of time of some of the participants which meant that some aspects of the study has less data than others. However, it could also be argued that the questions are overlapping enough that all aspects of the study were included anyways. In order to improve on the credibility aspect, one could think that more participants could give a more credible conclusion of the data. Another thing that could have resulted in improved reliability was to use more instruments of measurement, e.g. inquiries or observations.

Reliability refers to if the same conclusions could be drawn if the study were to be done again (Björklund & Paulsson, 2003). Processes takes time to change in an organization which is why a similar result probably would be found if the study were to be done in the same settings in the near future. However, it can be said that on a long term will processes certainly have changed, this is especially significant in the sense of the technological advances we see regarding information technology. It can also be said that despite changes in processes for achieving innovation through knowledge transfer will the psychological results and mechanisms probably not change that much. The reason for this is that the way we are psychologically wired is biological which again does not change during the lifetime of a person.

Objectivity is about to which extent and degree values affects the study (Björklund & Paulsson, 2003). Regarding the purpose of this thesis can it be said that the objectivity is quite high. The reason for this is that it is not a question related to politics or personal opinions in a direct way. This in turn means that there are no clear dividing questions where the author of the thesis and the informants might have widely different opinions which could affect the objectivity in that sense. On the other hand, can it be said that the interviews and especially the primary data will be influenced by personal opinions since the informants will be reflecting their own lives from their point of view.

Apart from the three measurements mentioned above is another factor related to method also the number of informants. As previously stated will there be six different informants which is a bit too few to draw generalizing conclusions of. However, it will most certainly be possible to find similar patterns in other similar organizations.

The last aspect regarding method problems in this thesis that will be brought up is the question of who the informants are and how it may affect the outcome of the study. It is an important question to address since, depending on the position of the informants, they will have different scopes on the research question. The informants are at similar positions in the organizations, all with a connection to development of product, process or business. This would imply that the answers most likely will come from a theoretical point of view of how things work and should work compared to employees closer to the ground floor who might tell things the way they are. This might be a problem since the data may not encompass what is happening in reality. This will however most probably also mean that the answers are conveyed in the same manner which implies that answers at least will be comparable.

3.6 Conclusion

In this chapter, a review of the methods that have been used in order to retrieve the material has been presented. The study has been conducted deductively which means that the theory has laid as a foundation in the retrieval of the empirical material. A review of the practical approach has been depicted together with issues of the chosen methods. In the next chapter follows the theoretical framework that sets the basis of the empirical data.

4. Empirical data

In the previous chapter was the methodological framework presented where the methods of data collection were established. The theoretical framework has also been reviewed. In this chapter, the empirical data is presented as the second and final part of data. The chapter will start with a short introduction of the companies where the interviews have taken place followed by a systematic review of the interviews

themselves. In the review of the empirical data have the aim been to display all the data that has been gathered. The reason for this decision is to give an objective depiction of the data as possible. The empirical review may thus include data that may be unexplored in the analyze chapter. Since the interviews have been carried out anonymously have each interview object been given an alias and will never be referred to by their real names.

4.1 The organizations

Due to the anonymous nature of the interviews is this study unable to disclose the company names and thus more detailed information about the companies participating in the study. The people participating in this study are all working in organizations listed on the stock exchange. The organizations had revenues exceeding 1.5 billion euros in 2018. As earlier pointed out may these organizations be seen as MNC's due to their activities and ownership to a large extent being located outside of Finland. All companies employed on average 2000 or more people in the year 2018.

The companies participating in this thesis are all involved in the pulp and paper production which also serves as a key-sector for these organizations. The companies can be categorized as manufacturers and producers in the sector. The companies are however also active in various other sectors related to the forest industry.

4.2 Interviews

As mentioned in the previous chapter, a total of five interviews have been carried out in four different companies active in the Finnish forest industry. The interviews were carried out in respective organization's office.

4.2.1 Interview with Anders

Anders holds a master's degree in engineering. He has been working with development for the majority of his career. Anders is currently working as a manager in company X at one of the mills. The majority of his time is allocated to traveling, administration and the development of processes and products. Regarding

development in the organization does Anders think about the problems at hand as well as organize and lead others that are involved in the development of products and processes. Anders does however explain that no day looks the same.

The structure is described by Anders as non-hierarchical. While further explaining the structure of the organization does it occur that the company has a classic structure, i.e. the further one go to the top the less people there are. From a structural point of view can it however be seen that there only are seven or so levels needed to go from the absolute bottom to the absolute top of the organization.

According to Anders, the culture is typically Finnish from a managerial level all the way down. By this does he mean that one tend to trust the leaders, even those on a higher level. But because of the level of internationalism does the leadership change the further up in the organization one goes.

When we start to talk about innovation and what it is, Anders describes it as everything that can be made cheaper or more productive. He mentions for example that a new product, a new raw material, a cheaper transport route or to reduce emissions can all be seen as innovations. He further mentions new ways to recruit and new ways to monitor a machine as examples of what he regards as innovation. While asking what kind of innovations the company is trying to achieve does Anders answer that the above mentioned innovations are all examples of what company X is trying to innovate. They are trying to innovate in all areas that adds value. The focus is however on product and process development and innovation. Anders argues that the reason for this scope on innovation is that it is easier to show the difference between these kind of investments and their results than for example investments in HR.

Anders mentions that there in essence are two ways to come up with new ideas. One is that a person comes up with an idea of how something can be improved. People can for example say that they have found an easier way to reach a certain goal. The other one, considered more traditional, is that there is a need. When there is a need, one systematically applies resources in order to solve the problem, according to Anders.

When further asked to elaborate on how a process or product innovation came to life, Anders answers that he cannot. He does, however, mention that there in general were a few things necessary for the innovation to come to life. It took a number of things, seemingly insignificant on their own, or things earlier thought not working on their own, to be put together in order to realize this innovation. The thought process was depicted as thing X enables thing Y to work which in turn makes Z possible. All the things were separately worked into the project and put together whereupon it started to look promising and the innovation could be finalized.

Regarding crucial factors for innovation does Anders argue that people is the most important asset. He further develops his argument by saying that a person who is constantly looking around and thinking about how something can be improved or work better is the kind of person who is important for innovation. This is the kind of thinking that has to extend to the mill. If an idea gets presented, they further organize around that idea if people think it is a good one. There is no such thing as the optimal innovation organization, according to Anders. Moreover, Anders elaborates on his argument that an important aspect in people is to be open for new ideas. The reason for this is that it is always easier to say no since saying yes means more work for oneself. This type of attitude is regarded as important among “white-collar” employees as well as “blue-collar” workers. Anders mentions that they welcome all ideas from all levels and that the company has a computer system designated for the purpose of capturing ideas of improvements. Every department takes care of and process their own ideas. They are treated and filtered out according to the contemporary need of the department. Two or more people thinks about the idea, whether it will proceed to the next step or not. The aim is that the closest manager or foreman mentions that they have received the idea and that they appreciate it. They receive about 100 ideas per year at the mill. The thought is that if one bets on enough horses one of them will win.

Regarding failure in the creation of an innovation is it implied that if one does nothing then one will not fail on the one hand, but on the other hand will nothing evolve. This is something the leadership in the organization is counting on, it is a game of probability. They are trying to learn from failures by sharing their

experiences to some extent with other mills and other personnel on the one hand. But on the other hand does a failure at this mill not mean that it would not work at another mill with different circumstances argues Anders. They do however try to explain why something did not work out for them. He says that experiences are shared through an intranet but that face-to-face is the most common type of medium for the transfer of experiences and information.

The time frame for innovations are seemingly long in the industry. According to Anders is, or at least was, the paper industry notoriously slow when it comes to innovations and improvements. The reason for this is that the risks are very large. He takes an investment in a new paper machine as an example. The cost and thus the risk is so high that one have to be as sure as possible that the paper machine works in the same way one have anticipated. He mentions that the plan of action when it comes to new investments and innovations, like this paper machine, in broad terms is to start in for example a laboratory. After this maybe moving to a laboratory that is a bit larger and finally perhaps rent a machine that is a lot thinner but otherwise the same as the full scale machine before deciding on investing in the real deal.

When it comes to more outsourced developments, Anders mentions collaborations with universities and research institutes within the forest industry. Regarding these kind of collaborations is it not uncommon for competitors and other companies within the forest industry to be involved in the projects as well. Important to note is that they are only collaborating with competitors in the development phase of a project. The next step is either to take the developing project in-house for finalization or to keep on collaborating with the university or research institute as the only partner. The partnering organization will then only report to company X. But company X is also the only organization still paying for the service at this stage.

If a product or process does not work in the entity it has been developed does Anders mention that the solution can be offered to colleagues in other mills. Another possibility is to patent the innovation in case they want to protect it. If it is possible to patent the innovation then they may license it out.

Anders regards knowledge as how one applies the mixture of theoretical knowledge and experiences. General knowledge also emerges as a key to how he sees knowledge. Things categorized as typically necessary knowledge in this organization is basic chemistry for example. He says that an employee is totally out if he or she does not understand it. He further elaborates by mentioning that a broad range of knowledge is needed since the processes have to be streamlined and waist minimizing. Knowledge in production economy, chemistry and physics are all necessary. All this knowledge must already be on one's radar when one starts to think about innovations and improvements.

Situations where knowledge is shared ranges from regular work to meetings with colleagues to around the coffee table. Regarding "white collar" employees like engineers, they learn the practical framework of the mill through regular work. The thought is that these kind of employees already have the theoretical knowledge. The engineers are a group of people that sits together quite a lot. One learns quite a lot by just participating in meetings and quite a lot is exchanged at the coffee table, according to Anders. He continues by saying that through participation in a project at a young age and by just listening to what others are saying can one learn a lot. For example what is important and what is not important. The fact that information is shared face-to-face appears to be the norm rather than the exception. According to Anders, the first idea is proposed by talking to another person most of the time. When an idea is bought may it however be on another level. In that case is material and presentations shared in order to gain a deeper understanding. Another situation when knowledge is shared is when somebody is about to go into retirement. Someone is then recruited, either internally or externally, to work together and learn from the one who is about to retire. The transaction period may however be as long as five years.

"Blue collar" workers has a similar way of learning, which is learning by doing. Anders mentions as an example someone looking to be a master on a certain type of machine. The knowledge transfer process carries on for many years where the student follows the master from another position. They are trying to hire people with the proper theoretical knowledge but it does not always work. Sometimes is this not possible and they recruit someone who knows their job but want to tasks at work.

Anders gives the example of an electrician who wants to run processes but mostly knows how electricity works. The electrician may find a problem faster in that case than the person who knows about processes but nothing about electricity.

Regarding the development of knowledge in the organization does Anders mention that they sometimes look for people with knowledge they expect to be needing in the future. He says that the knowledge which is already inside the firm can be transferred and learned by others but that new knowledge has to be taken from somewhere else. Either through acquisition of from an external source or by developing it in-house. Then it might be easier to acquire it from the outside. Examples of new external knowledge are thesis work and new recruits. New people with new knowledge can come from competitors as well, but at the same time is the company losing people and knowledge in the other direction too. Obstacles in the generation of new knowledge through recruitment is that there has to be an open position, much bureaucracy is involved as well so in the end things stays pretty much the same. Anders further elaborates on the development of knowledge by saying that it is quite self-evident that success stories and failures are shared within the firm. Successes can be copied and failures can be used as examples to learn from.

4.2.2 Interview with Ben

Ben has an educational background in paper making with a minor in industrial business. He has been with company X for about three decades and has mainly worked with R&D in various settings. For a few years has strategy and business development also been under his umbrella. Ben spends most of his time in meetings. Half of the meetings are internal and the other half is spent with external groups of interest like technological providers, universities and research institutes. The starting of research projects is another part of his job description, making sure that the organization get all they need from a project.

The structure of the company is described as a matrix. They have several different business areas supported by global support functions like HR. Ben explains the leadership in the organization as originating from a few key values of the company. The leadership supports these values and are given quite much freedom. Freedom is

implied as trust of the management and that they will do their utmost to find the best solutions for the company. He also states that the hierarchy is quite low. “So you can really go and discuss different issues with different organizational levels”, according to Ben. This two-way communication is furthermore supported fully by the company. The culture is regarded as innovative and as a key element of the company which is also seen as a part of the organizational culture. Co-creation and coaching are also defining terms of the culture, according to Ben. Co-creation and cooperation are values that extends to external partners as well.

According to Ben, innovation is about commercializing a solution or an idea. Innovations can occur in different areas. “It doesn’t have to be a product that is then launched on the market” Ben says. Alternative innovation areas given as examples are ways of working in investment management and HR processes. He does however underline that an innovation should be somehow measurable and add value to the company. The organization are making a few different types of innovations depending on business area. In more mature areas, like the paper business, are they focusing more on incremental innovation in the form of cost efficiency or new business models for example. In business areas with higher growth is the focus more on finding new products, new features for the products, extending the product portfolio and the market and so forth. They also have new business initiatives where innovations in technology, applications and commercial solutions have to be applied in new settings.

Ben gives an example of innovation in the company by describing the process of entering a new business area that required solutions not seen in the organization previously. The first step was to acknowledge that one business area was slowing down and decreasing in size which needed to be compensated for. Ben says that “… naturally the company thought that what could be new business areas that could be built to company in order to compensate the general decrease”. After deciding on a plausible business area, they consulted external help with knowledge of the area and the product. A team was then built around the consultant whereupon cooperation with non-domestic companies were established in order to try out certain technologies. This did not work and they decided to build their own development center where investments in pilot facilities were made. Experiments and tests were

further conducted in-house. The results from the pilot investments were used as encouragement to invest in the new business area. Ben further mentions that this is the innovation pipeline, how one goes from knowing nothing about a business to launching a product in it. Ben explains the innovation process as "First [you start] with the externals, then you get the knowledge, then you do more by yourself. Naturally you have cooperation with external parties all the way the pipeline but…". He explains that external cooperation is necessary when they are dealing with an area that they are not so familiar with. Moreover did this process take, from idea to product, about eight to nine years to complete.

Like this example showcases is the process often a continuous process of cooperating with customers. Especially in new business areas and initiatives. "… the earlier you can go with the applications to the customers and get the feedback the faster you develop the work will be", according to Ben. He also mentions that the innovation process has changed during the past two decades in this fashion. Ben says that "… you have to do it so that at an early stage already, you're doing the development work and the proof of concept and get the customer feedback". Earlier it was more about developing in-house until one were really sure about the product. "Then we had the courage to go to the customer".

Regarding innovations done internally argues Ben that the knowledge already more or less exists inside the company if research is needed. External collaboration is hence not always that necessary. When it comes to new business areas however is external cooperation important. He further elaborates by mentioning that when they go into new fields do they not have the knowledge or the competence inside the company which means that they have to find the partners who they can execute the collaboration with.

Regarding failure of an innovation project is it important that the leadership explains why things did not work out and why a project was killed. Important is also to let the employees know what will happen to them and that they have other things to work on in those cases a project falls through. According to Ben, some people do react badly when they hear that a project is closing down but overall he thinks that people

in the company understand. He attributes this to criteria that has been set up before beginning a project that they are following.

External cooperation exists with research institutes, universities, customers and tech providers. Once again, Ben mentions the correlation between entering new areas and collaborating with external organizations. He says that in areas where the technology does not exist are the technology providers necessary to cooperate with. He further mentions that it is very rare that one would have exclusivity to the technology and that cooperation with competitors is a possibility. Collaborations with universities are more long-term programs. He explains that these kind of projects starts from basic research and moves on to the application before going into the commercialization phase.

Ben describes knowledge from an organizational point of view. He mentions that competence and knowledge are related and hence explains knowledge as competencies existing in the company. The company has knowledge of markets, customers, technology, raw materials and products and so forth. He further argues that it is difficult to answer what kind of knowledge they share since it always starts from a need in the beginning of a project. At the beginning of a project, the employee evaluates what kind of knowledge that is needed in order to fulfill the task at hand and which kind of persons who may possess that knowledge.

Ben argues that it is important to share stories from which one can learn. Two key elements for initiating the sharing of knowledge, according to Ben, are event meetings and documentation of different learnings and projects so they can be found through the internal database. The reason why the documentation is an important part is because people who joins the organization are introduced to the system which means that they know how to find and share knowledge inside the company. Ben says that "...the ones who have written or has been leading these kind of initiatives, of course they are contacted". The way this works is by assigning each employee with their own profile where they can put information on what their competencies are by using specific terms in A HR system. If an employee for example wants to look for someone who knows about artificial intelligence, they can find her or him in the internal database. "You can go to the system and see that who are the persons who

have put that as one of their capabilities" Ben says. The employee can then connect with the person and get in touch with them. He mentions that it is important to be proactive and really go to the system in order to find the correct people with the correct knowledge, because that is really the only way to find the correct connections. Regarding meetings are some management meetings where knowledge is shared and a part comes from subject oriented meetings. That is, meetings where a certain subject is being discussed where feedback is given and shared. Key ways of communication are face to face and Skype meetings, according to Ben. He does however mention that it is important to have meetings face to face when one has a new team before having more of these Skype meetings. The reason for this is that people can get a chance to know each other before starting to share knowledge in ways that are not face to face.

Regarding development of knowledge, Ben says that it is crucial to have a very diverse group of people with different education inside the company. This is where the development of knowledge starts from. When it comes to the development of the employees in the company, they apply a 70/20/10 approach. This means that 70 percent is learned by doing. That is, learning through real work experience. 20 percent is coming through sharing knowledge with colleagues and the last 10 percent comes through formal training. He thinks that real cases are important for the development of knowledge in the organization in order to learn from something concrete that is actually happening in the company. Team meetings are also seen as an opportunity to exchange knowledge. Ben explains that what has been done correct and what can be improved upon are collected and documented. This creates the possibility for others to learn from. For example in the creation of new business initiatives can people through the database extract knowledge and learn from others.

Another way to go about developing knowledge in the organization is through business intelligence. Business intelligence can then make studies on what kind of knowledge that is needed in which area and define it. It is then about what is relevant for the organization to know. He underlines that it is important to utilize the ability of the company to an as large extent as possible. The next thought in the process in case the knowledge cannot be located inside the company is to think about who possible

partners may be in order to gain the relevant knowledge. Which are the external partners that can support the creation of knowledge inside the company.

The development of knowledge can also be tracked back to the "innovation pipeline" described earlier. Ben says that the feedback from the customers are important during the creation of products which includes exploring something new and building a new base of knowledge. The development further extends to the involvement of external partners. In the context of creating a new sub-organization when entering new ventures is the transfer of knowledge between the employees important. According to Ben, there are two important factors that facilitates the knowledge transfer. Namely size of the group and the variety of people involved.

"I think it comes that when you are having these kind of business initiatives you have to build an organization so that you have good balance between technology people and then you have good balance of commercial people and they have to be in the same organization, because then you make sure that the information that comes from the customer front is also used in the technology organization." – Ben, 2019

He means that it is not difficult to share knowledge and information in these kind of groups when there are only 20 to 30 people involved. Especially compared to larger organizations where different departments has to be involved as well.

4.2.3 Interview with Christian

Christian is a chemical engineer who has been working with this organization for about eight years. At the beginning of his time at this company was he leading a product development team for three years before entering a role at director level in a technology function. His work revolves mainly around innovation processes and innovation events, both internally and externally. At this technology function, he also works with funding, commercialization of patents, partnerships and innovation. To sum it up has Christians positions in the company had something to do with innovation in way or another. Regarding what a normal day looks like is he not really sure if any day looks the same. The days are usually filled up with organizing innovation events, figuring out challenges for these events, working with suppliers

and different partnerships, working with students and taking care of work related to funding.

Regarding the structure of the company is it built up through multiple business units. He describes it as a traditional reporting structure. According to Christian, there is really a barrier between the different units where secrecy agreements are in place. The units are working quite individually despite there being some cooperation in between, for example through research which is linked to the other units through the umbrella corporation. Christian mentions that he is interconnected with all of these units through for example innovation events which brings the units together. The size of the company does furthermore lead into silos because of the organizational levels needed in the company. Christian further elaborates that this may be because of efficiency programs which has led to cut-downs in the work force which in turn means that people has less time to innovate and interact with other business units. The reason for this is that people has their own targets to follow. Despite having had programs for coaching, collaboration and co-creation is this something that still requires work, according to Christian. The culture is described as quite hierarchical but the view of innovation has changed from something in R&D only to something that is basically everywhere. “I think nowadays people do realize innovation is not only in R&D, innovation is basically everywhere, and everybody is involved in innovation” Christian point out.

The leadership is as earlier described quite hierarchical despite changing in recent times. He explains that “I have seen it change during the years that I have been here”. He also points out that the top management has acknowledged the importance of the work lower down in the organization. The reason why this has been important is that it motivates employees which further means that they enjoy their work more.

According to Christian, an innovation can be an idea, a concept, a process, a service or a product that is commercialized. “There has to be benefit coming out of it” Christian explains. New revenue streams, improved processes, decreased cost or a new product line are further added as examples of what an innovation may be. The company is focusing on innovation in the areas of finding new business opportunities and resource efficiency. Circular economy has been a part of the forest industry for a long time already. These types of innovations have been about closing systems in the

production and also something as simple as paper recycling. The closing of the systems are not ideal yet but plans are already in action to achieve it. Much thought is also given during the development of new processes and products to be sustainable throughout their lifecycle. Along the lines of circular economy does this mean that the new products and processes will use as little water and energy as possible while at the same time thinking about how it can be reused or recycled as a raw material. Christian says that the emphasis on environmental issues has become one of the key aspects. "... the economics and the environment work hand in hand, it serves both".

He explains one of their recent innovations as coming alive through a 10 year long process involving external partners. This time frame is quite typical, according to Christian. The process started with three different projects trying to achieve the same product. A couple of years before realizing the innovation were two of the projects terminated as they got to the point where they could make a decision. Between these different projects with the same goal was a tight secrecy agreement in existence. The reasons for this was that it created differences in the outcome, speed and the fact that the external partners were competitors. Christian points out that they hired, both internally and externally, more people to the different projects with various skills since they need different competences throughout the process. The initial spark of the idea came through various steps. It started with a mandate from the top management to start looking for new opportunities. "Then the team did couple of years of scouting and looking for technologies, studying the market, looking at what we could do, what we should do, what would be available" Christian says. The possibilities were thus explored and initiated in this manner. They usually bring up a couple of initiatives from the scouting process until deciding which ones are more important and further made into projects. He further states that the organization does similar scouting all the time but not at the depicted scale at the moment since there are previous projects waiting for investment decisions.

Christian explains that issues regarding innovation currently revolves around the innovation culture and general attitude towards it. He says that a positive attitude towards innovation is needed and that people often do not want to get involved in these kind of initiatives. The reason for this is that it usually means extra work for the employees which he says also affects people who otherwise enjoys bringing ideas to

the table. Christian says that a coworker told him during an innovation event that "oh, it was so nice to come here and work and innovate for two days for somebody else, and when I go back to my office I know it is not going to be on my desk as a to do list". Resources besides money does also come across as important, e.g. time. According to Christian, free time is an important resource in that sense that if a person is only working on a project do they not have time to think about improvements. Engagement from the top management is also seen as important as they are the base source of incentives and motivation. He says that all of these issues boils down to the lack of a structure for innovation which is based on solving the above mentioned problems. "It's the result of the structure and this atmosphere and attitude towards innovation". He gives an example of where there were a structure in place regarding a previous program. The program was about commercial innovation where the company employed a method where they collected people from different functions such as marketing, sales and so forth. This enabled these people with various skills to work together and to think about how to improve the sales processes. According to Christian, this was really efficient since people were allowed to talk, work and share experiences. They are currently working on improving the innovation culture and the structure of innovation through these innovation events and boot camps for example. "... this boot camp that I'm running is a part of this kind of a structure so working that we get people to innovate".

Ways of thinking about innovation are currently changing. Regarding how failure of an innovation is received have the mantra from one of the executives been rephrased from "fail fast" to "validate quickly" which, according to Christian, means that a failed innovation is not necessarily seen as a failure. The idea is to not spend too much time on a project that is not following a set out target, instead it is better to abandon a process if it does not work. The approach to innovation is also slowly changing. Christian explains that they have much more external contact nowadays. This comes as part of a changed policy. This can be seen in for example emerging technologies and so on.

Regarding the transfer of knowledge is it not an easy task to accomplish, according to Christian. He says that for example when a researcher changes teams from one project to another is it not always that easy to transfer the knowledge from the team

to the researcher. Moreover, they did for example have a big program a few years back where the objective was to retrain researchers from one area of competence to another. Christian says that "If you are a pulp engineer and you should become a... work on biochemicals, it's not that easy".

4.2.4. Interview with Daniela

Daniela works within research and leads a global team within R&D. The team of seven people is focused on developing the research and development efficiency in the company. More accurately, they are involved in new product development processes, technical customer service processes and different process laboratorial processes. The team is also involved in resourcing of new projects and collaborations with universities, institutes and suppliers. She also acts as a contact person for the R&D. Daniela has studied chemical engineering and has for a few years now been working with R&D. She came to this organization 20 years ago after working a few years as an assistant at a university where she did some research and at a university of applied sciences. She says that every work day changes and that none looks the same. The days are however usually filled up with portfolio management, work with project managers in order to get projects to move forward or meetings with external partners.

The company she is working for is active in the pulp and paper industry and a few other segments. It is a large international company with many activities placed outside of Finland with several thousand employees. The organization is structured as a matrix organization with different business units supported by functions like HR, financials, R&D and communications.

She regards the collaboration inside the company as quite good as they have an open culture despite being a very Finnish company in the sense that things are done quite systematically with many processes. Daniela thinks that things are different compared to when she started 20 years ago and that the leadership culture is more open nowadays. People can always get advice and have their say in different matters. "I would say so because it's easy to communicate with people" she explains. There is still some hierarchy on the one hand, but on the other hand does she also think that

the leadership is more caring of people and open for discussion. She says that "Of course there is decision kind of making, that ability we have, that ability we also have, but not this kind of management by fear". They want to develop people leaders especially which tells a bit about what kind of leadership they are trying to develop in the organization. She describes the organizational culture as more open and discussing nowadays with an emphasis on risk mitigation regarding people and safety. Daniela argues that a shift towards a more open and discussing culture started from the CEO of the company. This has meant that the culture is softer while still keeping to ability to make difficult decisions, according to Daniela. Their way of dealing with failed attempts at innovations does also reflect their culture, according to Daniela. She says that failure is accepted and that they do not blame the project manager or anyone else. "Nobody is blamed, let's say so".

Daniela sees innovation as the creation of something new, identification of opportunities or processes. She concludes that innovation is about something that is new. The organization she is working for are doing innovations in the form of product solutions, digitalization and process control, improvement of processes and products. An example of process control innovation that have been done would be the monitoring of pulp and paper mills off location through sensors and information systems. Predictive analyzing is another type of innovation the company is working on at the moment. The aim is to use data in order to anticipate future problems. Areas that drives their innovation are also different megatrends in people's behavior, for example increased e-commerce and environmental concerns. Regarding e-commerce are the innovations about how to reduce the weight and size of packaging materials and environmental concerns shifts towards consumers being more aware of which chemicals are used in different products Daniela argues. She underlines that her team focuses on research in technical areas and that it has to have relevance to the business and have potential. "So it's not just this kind of basic research we want to do and need to so it must have relevance in business", according to Daniela.

She says that many of the innovations are based on a certain need from the market. For example through collaboration with customers where the customer has a problem that has to be solved or in collaboration with a university. She gives the following as an example of how one of their innovations regarding a product came to life. The

process started by putting together a proposal, which follows a certain format. Things to think about regarding the proposal are; what the customer need is, what the business potential is, what the background is, how long it approximately will take and what the target is. Other important factors to take into consideration are competences, resources and stakeholders. At this stage is thus the partners defined and who to collaborate with, both internal and external partners. After taking all these factors into consideration and moving onto the next phase they make a sustainability review where impact on environment, energy raw material etc. is checked. Daniela says that "So this is how it came up. Based on the need. Put together the idea, then all the ideas are reviewed". Typically they start in the lab after being approved by the management. The time spent in the lab can be months, sometimes even years. They then have a "recipe", according to Daniela. The recipe is then implemented at a pilot scale or at full scale and tested at the customer to see if any fine tuning is needed. If there is no need for modifications then the innovation is commercialized and the project starts to come to an end.

Furthermore on external partners, the company has a long history of collaboration with universities and research institutes. Their collaboration extends all the way to suppliers and even competitors to some degree. Collaboration with competitors is however fairly limited to a certain code of conduct. Control projects are an example of co-operation with competitors. The code of conduct is however evident and people know how to behave and what kind of information to share and not to share. They also participate in the same conferences and so on Daniela explains.

A collaboration with a university for example can start with a project proposal from the university. Daniela says that "… they might come up with some project proposals". The same goes for research institutes. She says that if the company thinks the proposals are good ideas will they participate. These proposals also serves as a source of ideas for potential innovations. Another source of innovations are customers. In a situation where a customer is the source of an idea is it mostly in the form of a need. For example regulatory or environmental needs that the customer needs a solution for. An idea from a customer can for instance spawn from a visit at the customer. A contemporary need in the pulp and paper industry in regards of the environment is for instance the need to reduce the use of plastic and water. Some

customers are also involved in the development of an innovation by being the first one to try the innovation, according to Daniela. Other times they want to know the references. They have also recently started to work with hackathons in an attempt to further explore ways of working in an open innovation kind of fashion.

In the process of making an innovation or a project, the company makes use of a project management system. Daniela explains that at the end of each innovation attempt, regardless if it is a successful project or a failed project, is the project audited and uploaded into the project management system. There they can find all the documentation and time schedules related to a project. As a result of a thorough reviewing and evaluation process are there less projects to stop which in Daniela's opinion creates a more positive culture towards bringing up new ideas. She further elaborates by mentioning that people know why they need to do these reports of the projects which further enhances the motivation to do the reports. The objective of this data base is to learn from mistakes and earlier projects and also to see if something is done previously in the same area.

They have a few different ways of utilizing the system. One is to see if something has been tested previously in the same area. Daniela gives an example where an employee had an idea for a project. The employee checked the system and found out that a similar project was currently being developed. The employee could then be transferred and help out on the ongoing project. Another way of using the system is to use previous projects in order to facilitate the construction of new projects. Once every quarter does a larger team with different competences go through the findings, both lessons learnt and positive things. They then have a discussion together with resource managers where after they decide what to do with the findings. Everyone in the company does not have access to all information in the data base. But they can get access to a specific part after a review of who they are and so forth. The accessibility is mainly split up in departments and the access of an employee is determined based on this.

While talking about knowledge and what it is does she say that skills needed in her department is mostly related to chemistry, e.g. one needs a degree in chemical engineering or similar. They have one person in her team who does not have a

background in chemical engineering, but this person does instead have much knowledge about innovation processes and similar.

Ways they share knowledge through are, as earlier mentioned, the project management system, portfolio presentations, calls and meetings. They also use different types of intranet methods in order to share information. Daniela is for example mentioning that they have one type of share point where they can communicate different trials of a project. Regarding meetings, they have global technology meetings where they share information about new products, development and the business and so on. People are also changing position which contributes to the sharing of knowledge. “Many from R&D have left (for some other department) and are now in the business position” Daniela says. She says that it is common for people to go from R&D to business positions but that it rare that people go the opposite way.

Regarding the development of knowledge they, among other things, make competence plans in order to know what kind of knowledge they need. Daniela says that they try to identify their best competences. This may be done on the R&D level in in the organization in order to understand what they are good at and thus what they can master and be the best at. Then a development plan is made up on how to increase the core competences by identifying the gaps in the competences. According to Daniela, her team organizes events where best practices are shared inside the organization. All project managers who are interested can participate. They also use the previously mentioned project management system in order to leverage the development of knowledge. This is for instance done by reviewing projects that have already been made during the proposal of a new one. This in turn makes a person involved in the review process remember that they have worked on a similar project before and with which person. Daniela says that someone can come to the conclusion that “this was done in my sales area 12 years ago and this was the person” during this process. She says that quite a lot is based on the people one knows in that way since it enables further collaboration.

If the desired knowledge does not exist internally then one of the alternatives is to make a study if possible, either internal or external. External partners may in this

case be the likes of universities or research institutes. Another approach is open innovation. Daniela says that this is an approach which they have not tested to a larger extent yet. Open innovation is, according to Daniela, done through for instance hackathons. Situations where the company puts out a challenge to the public. Before involving external partners, either through challenges or through research institutes, the company usually starts by scanning the project management system and the reviews.

4.2.5 Erik

Erik has a master's degree in chemical engineering and has worked within the forest industry for a couple of decades now. His career within the industry has been international to a large degree until he settled down in Finland where he still works. Erik has furthermore been working with business development and sales. Budgeting and product development is also part of his job description. He describes a normal day at work as being filled with meetings with customers, creating reports after meetings with customers, creating offers to the customers and so forth.

The structure of the company can be described as a matrix. They have divisions for their different lines of services and products as well as country specific divisions which makes up the matrix organization. In that sense each country has a CEO, but Erik says that the title of the CEO is only a title and that the country CEO does not have any power. According to Erik, this is the result of a strong corporate leader in the organizations CEO. He points out that the structure of the organization thus is a bit complex and "fuzzy" since it is difficult to know who makes the final decision.

The leadership is described as very strong at the top of the hierarchy as a result of the CEO of organization. The middle-management, according to Erik, is thus more indecisive and tend to avoid risks on the one hand, but on the other hand the leadership accepts mistakes and do not necessarily need to find a scapegoat.

The organizational culture in Finland is a bit more open compared to other parts of the world where the organization is active, according to Erik. He does however point

out that there are domestic differences in the culture as well and that some areas of operation are less open than others. He attributes this difference to the way the company has been formed through mergers and acquisitions. Areas of operation has then, to a large extent, adopted the culture that has been in the acquired company. Largely due to people staying in the organization after the acquisitions which has then caught on. All in all, the culture is however quite conservative and bureaucratic, according to Erik. He further elaborates that it is not uncommon that one regrets what one has said and that the company is focused on different key performance indicators. These in turn can vary from year to year, according to Erik.

According to Erik, an innovation is something that has not been done before or something old that is applied in a new setting. He says that the innovations they are doing are largely based on the needs of the customers, largely in the form of innovations that make it easier for them to know what they are doing. The innovations they are working with are for example within "the internet of things" and how to automate different processes. The innovations then revolve around a lot of data analysis and so forth, according to Erik.

In the process of making an innovation, Erik says that it is often the customer that has the idea. He also points out that they have used people from entirely different areas in order to gain a different perspective on how to solve a problem or a wish from the customer and that the network thus is important. He says that people from different industries has knowledge that is unavailable in their own organization.

An example that shines light on the use of external partners and knowledge in the organization is when they installed sensors in a certain type of machine and managed to improve the way of getting real life information about the process. When the sensor gives a certain value, the person knows that a certain action has to be taken. This enabled the buyer to run the machine more efficiently, allowing them to optimize the machine and save money. This innovation began from collaboration with a person from another industry where they managed to gain necessary knowledge. The next and final step of the project was to run pilot tests before the innovation was ready for commercialization.

Erik does however underline that the use of external knowledge and people should be utilized to a larger extent than it is currently, even though it is used in quite many innovations. The reason for this, he argues, is that his organization does not know enough about a certain technology, or have the correct competences. Erik says that many innovations started from these kind of collaborations. He argues that they often have the vision and the idea but that they are unable to execute it on their own and that they need someone to realize the ideas. Regarding the initial creation of an idea, Erik says that they have a system in place where employees can post their own ideas. According to Erik, the system does however not work so well at the moment. He explains that the system used to work well when it was launched but that the activity has gone down with time. It has to be revitalized, according to Erik. Feedback of earlier projects done is another process the organization uses, according to Erik. He says that they have mapped all their technical innovations in order to evaluate them. This is done in order to understand which ideas are good, and which innovations to proceed with.

Limiting factors arising from external collaborations are intellectual property rights and the "not invented here" syndrome, according to Erik. IP-rights have become more accurate and there is a mentality in the organization that it is not pure cooperation if there is a patent that they are working through Erik further explains. Erik elaborates that the leadership higher up in the organization thinks that everything should be developed and made in-house. When it comes to smaller organizations that take part in collaboration the situation a bit different. According to Erik, it can be seen as a "win-win" situation in the sense that the collaborating organization gets global access while Erik's organization receives technical knowledge and competences. A quite common procedure during a collaboration like this is that the company Erik is working in brings up the idea and has the commercial knowledge while the other company has the technical knowledge. Another limiting factor brought up by Erik throughout the interview is the attitude among the employees. He mentions that people are afraid of using for example the above mentioned systems to contribute with the flow of ideas since they think that their ideas may not be good enough. According to Erik, there are too many people who keep on doing what has already been done previously since it is easier. Even people

who are keen on coming up with ideas do not often want to proceed since it means extra work for them, Erik explains.

The type of knowledge that is shared is mostly technical. Erik says, that the knowledge that they work with is comprised of some kind of result or some kind of quality data. Data that can be measured. Most of the knowledge does however exist in the form of tacit knowledge, according to Erik. He says, that much of the knowledge that is shared simply has to be explained in order to be understood by the receiver. He further explains that the personal connection is very important in that sense since one tend to be fairly selective regarding who the knowledge is shared with.

Knowledge is shared through various means. Erik explains that they for instance has different systems that can be used to transfer knowledge between employees but that these are not working sufficiently. He says that people's knowledge still is locked up on people's personal workings computers which means that the knowledge is unreachable in situations when a coworker is sick for example. Face to face seems like the means of communication and when knowledge transfer works the best, according to Erik. Some knowledge is shared at the coffee table for instance but as earlier touched upon, these informal face to face interactions are the best way for transferring knowledge. Erik does however point out that the likes of Skype and Lync works well once a personal connection between two people has been established face to face. Another way of sharing knowledge that Erik thinks works particularly well regarding the transfer of technical knowledge is a book where easy to grab descriptions of different machines are depicted. According to Erik, this comes in handy for those who are of the younger generation or if someone is not working in a particular field. It is a good way to get up to speed after a meeting for instance, Erik argues.

Regarding the development of knowledge in the organization does there not seem to be a proper structure in place. Erik explains that people learn by doing and that the organization receives much information through their customers which adds to their reservoir of knowledge. He further says that when they are out at the customers there is always something that has to be corrected and so on which helps the employees to

develop their knowledge. He says that they also are trying to make reports, but this does not seem to be working. A reason why this attempt at retrieving information does not work is that they, according to Erik, should have a place to gather the reports which they currently do not have. Furthermore, Erik mentions that something that works well within his group is that he can ask other people regarding different problems. He says that if he encounters an issue, he is able to ask a specific person for consultation regarding the problem. According to Erik, this is however dependent on if one has a good personal network within the group since one cannot find people on their own through some kind of system.

4.3 Conclusion

In this chapter, the collected empirical data has been reviewed. The chapter has presented a short description of the organizations where the informants are employed. In this chapter, the empirical data has been presented systematically where the informants' views and thoughts on innovation and knowledge transfer in their respective company has been presented. The presented empirical data and the theoretical data presented in the previous chapter will form the material needed for the analysis in the following chapter.

5. Analysis

This chapter will start with a short analysis of the empirical data where differences and similarities between the informants will be discussed. This part of the analysis will focus on how innovations occur and the processes that revolves around the creation of innovations. This part of the analysis will also evaluate how knowledge is shared and in which type of context and situations. Following this, an analysis about knowledge transfer will take place followed by an analysis of innovation where the theoretical framework in chapter two will set the basis of the comparison.

5.1 Empirical analysis

5.1.1 Analysis of knowledge transfer in the companies

In order to understand the implications that knowledge transfer has on innovation it is necessary to gain an understanding of how knowledge is shared and in which context. The reason for this is that once an understanding of the knowledge transfer has been established is a deeper insight regarding the relationship between theory and empiricism created.

5.1.1.1 Tacit knowledge

As can be seen from the interviews, tacit knowledge is predominantly shared face to face. Social interactions can be the likes of coffee breaks, meetings and learning by doing. Social interactions seem to be important factors, according to all informants. This is corroborated by Anders for instance who explains that quite a lot of the information is exchanged at the coffee table and by participating in projects. Ben again says that event meetings are one of the most important factors when it comes to the sharing of knowledge. The kind of knowledge that is shared in these kinds of circumstances are mostly of tacit nature. Erik, for instance, explains that there is much knowledge that has to be shared through physical interaction, he explicitly points out that there is much tacit knowledge that is shared and that this is dependent on personal relationships. Anders further mentions that the transfer of experiences is most commonly done face-to-face. This seems to be the case with Daniela as well who points out that quite a lot further development of an innovation is based on who one knows. The informants have in common that they use various information systems such as Skype for business and some sort of intranet in order to share knowledge. The use of Skype and similar information systems is something that has brought the world closer together, according to all informants. Noted is also that it is important to have met with the people one is using Skype etc. with previously. The use of an intranet does however seem to work with various success in the different organizations since it is actively utilized in some organizations and less in others. With this being said it does also seem like the information received from the intranet can be viewed as tacit as well as explicit. This is corroborated by Daniela who mentions that people use their project management system in order to gain ideas and to see what has been done previously on the one hand. Ben on the other hand says that people found through the intranet are contacted and further knowledge exchange can thus commence. The information received through this intranet is thus internalized in the moment it sparks an idea or can be indirectly utilized by the user.

5.1.1.2 Explicit knowledge

Information and explicit knowledge however is seemingly shared mostly through an internal database. Ben, Christian and Daniela all seem to thrive in their use of an

internal database while the use of an internal database seems close to non-existent at the companies Anders and Erik work for. Ben, Christian and Daniela all mention that they use this information system in order to share learnings from previous projects and in order to get in contact with people who has knowledge that they need. Ben says that the employees go through an introduction to the system when they join the organization. He also says that one has to be proactive in the use of the system. This can be compared to Erik whose organization has an intranet that is poorly utilized. Erik mentioned as well that they do not have an introduction to the system. This may thus explain the underutilized intranet at Erik's workplace to some extent.

5.1.2 Analysis of culture and leadership

The structures of the organizations are fairly similar to each other. For instance, Ben, Christian, Daniela and Erik describes their respective company's structures as matrixes. Christian and Erik both mentions that this kind of structure leads into silos

which makes the transfer of knowledge more difficult. An intriguing question is then whether it is the size of the organizations or the structure that makes it difficult to share knowledge across the organization. On the other hand, Christian also mentions that there are strict secrecy agreements between the different units which may explain the lack of cooperation between the silos. He also says that people in an organization as large as this one has many individual targets to follow which may keep them from sharing knowledge due to a lack of time.

The culture in the organizations share similar traits between each other. There is in general a negative attitude towards innovations and towards starting on a new project with an unclear outcome. This is illuminated by Anders for instance who says that people are more inclined to say no to a new idea since it creates more work for themselves. Christian further mentions that people like to innovate and breed new ideas but that the workload that follows is what keeps them from being too positive about innovation. Regarding the openness of the culture and the level of hierarchy, we also find similar traits in the companies. Most of the informants says that their cultures have become better throughout their career but that there are still things to

improve. This correlates a lot with the leadership and their view of openness, according to some of the informants. For instance it does appear as many of the changes that can be seen regarding openness originates from the CEO or the top management. This is corroborated by Daniela who says that the shift to an open culture started from the CEO on the one hand. Christian on the other hand mentions that the view on innovation has changed as the top management has acknowledge the work of people further down in the company. The leadership is further described as more accepting of failure nowadays and even as understanding that it is a part of the innovation process.

Other traits of culture that are expressed by the informants are trust, systematical thinking and innovation. Both Daniela and Anders describe the company culture as Finnish. By Finnish, Daniela means that the culture is very systematic and that there are many processes involved while Anders means that there is a lot of trust in the leaders at different levels in the organization.

5.1.3 Analysis of innovation

Regarding innovation at the different companies, most of them have rigid processes in place in order to facilitate innovation. As noted in the empirical chapter, they may however look fairly different. Things they have in common are that they build on earlier knowledge retrieved earlier attempts. For instance, Anders says that they used previous inventions in order to create an innovation while Daniela mentions that they make use of a project management system filled with ideas and Christian mentions that earlier developed knowledge was crucial in one of their innovations.

5.1.3.1 Innovation processes

The process of coming up with an innovation from scratch in the companies has both similarities and differences. They all seem to have some kind of structure in place to bring innovations to life, although some more than others. What these organizations seemingly all share in the process of creating an innovation is that they start by looking at what kind of resources they have within the organization and what is sensible to further invest in. Furthermore, these organizations do to a various degree make use of intranets and so forth in order to see what can be learned from previous

projects and also if the idea has been executed before. Other things they take into consideration is what kind of partners that should be involved, whether they be external or internal. The partners are as earlier pointed out required in order to gain the correct knowledge involved in the project, most of the time seemingly in the form of technical competences but also in order to gain deeper insight into a new market for instance. From there the informants says that they usually go into the laboratory and start developing the innovation before running pilot tests.

The pilot tests are either run in a lab or at a customer who is willing to be the first one to try. It depends a bit on the innovation. During the pilot run in some organizations or throughout the project, they furthermore involve the user or other external help in order to refine the product. Depending on how successful the pilots are they either fine tune the innovation or commercialize them.

Some differences among the companies interviewed can be found in the degree of structure in the innovation process. For instance, Daniela's organization does stand out as having a particularly structured process for innovation as they have several steps that have to be approved and evaluated before moving on to the next step. This can be compared to Erik's response where he points out that they try out new things here and there. However, is it likely that structured processes exist at all companies as Anders for instance points out that the investments are usually quite large which means that one has to be thorough in their evaluation of an idea. As can be seen in the empirical data, this is also dependent on the innovation and required resources.

How ideas are brought up in the organizations is also worth discussing. As can be seen in the responses from the informants, a fair share of the ideas are brought up by the customers. Other sources of ideas may come from universities when someone is writing a master's thesis for instance or as a result of a strategic decision where the company has to be innovative in order to extend their business. The last source of innovation explicitly noted was curious people. This can be drawn from Anders and Christian for instance who say that curios people are motivated to solve problems often come up with great ideas which further can be made into innovations.

5.1.3.2 Use of external partners

The use of external collaborators in their innovation attempts do also share similar traits among the organizations. For instance collaboration with universities is fairly common when it comes to building knowledge from the basics and in order to gain another perspective. This approach may also be used to create ideas that may eventually turn into innovations, according to Daniela. Collaborations with customers was also evident in many of the companies. All of the respondents expect Anders mentions that the customers play an important role in generating an idea. According to Daniela, they often for example have some kind of need which they in turn can fill. Other respondents say that customers are used in order to refine a product throughout the creation process. For example, by being the first ones to use the product or being asked for input.

The use of external partners further extends to retrieving and developing the knowledge inside the organization during a new project or idea. For instance Erik mentions that they often use external collaborators in order to gain the technical competences that they lack. Christian says that they use external consulting when they go into a market where they do not have experience. This in turn helps them in their product development phase since they get technical knowledge that they do not have. Some of these companies has also experimented with so called hackathons where they try to use an explicitly open innovation approach. For example, Daniela says that they have tried this approach to further explore ways of working with open innovation.

5.2 Analysis of knowledge transfer

In the following part, the empirical data will be analyzed against the theoretical data presented in chapter two. The analysis will start by systematically go through the data on knowledge transfer and the sub data where after it will move on to a systematical analysis of the theoretical data on innovation and its subcomponents.

5.2.1 Knowledge transfer

First of all can we look at whether the organizations participating in this study can be regarded as knowledge based organizations or not. According to Nordenflycht

(2010), a knowledge based organization is dependent on complex knowledge. As can be seen based on the informants does this also seem to be the case. For instance does Anders say that the ones that is working with him is expected to have theoretical knowledge in chemistry and physics while Daniela explains that everybody but one in her team has a background in chemical engineering. Similar levels of educational background is found among the other informants answers. Zack (2003) furthermore mentions that two important tasks in the knowledge based organization is to create new knowledge and to apply existing knowledge. All of these organizations seems to be creating new knowledge in one way or another. For instance do many of them create their own studies, either through university collaboration or in-house or both. For instance, Christian mentions that they have the ability to make studies internally while they at the same time are collaborating with universities and other external partners in order to further build their knowledge base on the one hand. On the other hand can it be argued that the products these firms produce (timber, plywood and paper etc.) can be regarded as fairly simplistic. Zack (2003) does however point out that it is not what the organization does or what it produces that defines the degree of knowledge that is integrated in the organization.

5.2.2 Factors affecting transfer of knowledge

Regarding factors affecting the transfer of knowledge is there like earlier mentioned a lot to take into consideration. To begin with is culture a common theme in the literature on knowledge transfer. Davenport and Prusak (1998) mentions that a beneficial culture in regards to knowledge transfer is created by having incentives and rewards that encourages the sharing of knowledge. Compared to the empiricism does it not appear as if the companies involved in this study has any incentives or rewards in place that encourages the sharing of knowledge. What however seems to be improving the transfer of knowledge is to have clear set expectations of what is required from a proposal and to make sure why reports has to be done. This is corroborated by Daniela and Ben who both mentions that the expectations of a proposal for an idea is well understood by employees which makes them understand why a project or proposal is shut down.

It is further mentioned by Davenport and Prusak (1998) that it is important that management acts by example and explains the importance of sharing knowledge.

This is somewhat true in the companies interviewed. For instance does Daniela mention that the shift to a more open culture started from the CEO while Ben argues that it is possible to discuss with people at different levels as this is fully supported by the top management. This supports the factors Davenport and Prusak (1998) says are of importance when it comes to the sharing of knowledge since Daniela and Ben mentions the impact leadership has on knowledge transfer. Christian, however, says that they have had programs for collaboration and so forth but that they still require work. This in turn may imply that it is important that leadership initiated practices are thoroughly implemented and followed up.

The opportunity to socialize is further discussed by Hislop (2013) who says that by providing different forums for people can social interactions be created. Earl (2001) additionally says that spatial design and social constructs can prevent people from interacting with each other and thus their sharing of knowledge as well. Different forums for transferring knowledge can be seen in the intranets, meetings and portfolio presentations. As have been seen does intranets seem to be working with various levels of success while meetings and presentations can be viewed as fairly standard ways of sharing knowledge. What stands out as a way of interacting with each other successfully is when the interaction is done face to face before moving on to any other type of forum. For example both Ben and Erik says that key to communication is meet one another in a physical form. The informants did not talk about different forums explicitly which makes it difficult to analyze.

The respondents do not say much about the spatial design either but regarding social interactions and constructs is it noted that some informants have the view that the companies are so large that it leads into silos while some do not. For instance, Christian mentions that the size of the company he works for is so large that it is resulting in silos and that people have little contact with people in other parts of the organization. The same does however not go for Anders who have a good connection with his colleagues throughout the organization. Anders further explains that he meets people from other mills on a regular basis in order to catch up and get to know what is going on in other parts of the organization. Also Erik says that his connections throughout the company are good but that many of them are based on personal engagement.

5.2.3 The dynamic capabilities driven model

5.2.3.1 Relational social capital

The first thing to be analyzed in the dynamic capabilities driven model is the internal environment and the relational dimension of social capital. The relational dimension is about personal relationships based on trust and respect which in turn increases the motivation to share knowledge (Gooderham, Grøgaard & Nordhaug, 2007). This is corroborated by Erik who has good personal relationships with other people in the organization, the same goes for Anders. Erik for example further explains that he in one instance had a very frequent exchange of knowledge with a person positioned in another part of the world and that they were able to communicate so well because they previously had met. Also Ben mentions that an initial contact face to face is important in order to establish a connection. What it further may depend on is not evident however but one could hypothesize that it is a question of establishing trust.

5.2.3.2 Cognitive social capital

The next step in Gooderham's (2007) model is the cognitive dimension of social capital. This dimension is about having a shared view of the world, a shared language and shared interpretations which in turn stimulates trust and thus the transfer of knowledge (Gooderham, 2007). According to Anders, the culture at the mill he is working at is one of trust in the management. Furthermore are the employees at the mill Anders is working at Finnish which implies that they have a shared understanding of the world. If we go outside the mill, however, Anders says that the culture changes as managers from outside of Finland increases in relation to Finnish managers. Despite this does Anders say that he has a good relationship with them. The same goes for Erik. Is it thus possible to argue that a shared language and a shared interpretation of the world enhances the transfer of knowledge? Intuitively does it certainly seem like it would. However, this is not supported by Erik's and Ander's answers since they seemingly have good relationships with people outside of Finland and that their transfer of knowledge is working well despite not sharing a language or a world view. However can it be argued that based on the empirical data is it difficult to determine whether there is a shared world view or not.

5.2.3.4 Structural social capital

Furthermore about the internal environment is structural social capital the last dimension regarding social capital. This dimension is about whether ties between different units in an organization exists and how they are configured (Gooderham, 2007). According to Anders, he has regular meetings with colleagues from other parts of the world on the one hand. Erik on the other hand does have non regular meetings with people from other parts of the world. They are however based on personal relations which implies that the structure is missing. As Christian mentions, the communication between different units is lacking a bit which implies that the structural social capital is nonexistent or vague. Seeing how Christian further thinks that the transfer of knowledge between different units are bad further supports the theory that structural social capital is important for relational social capital.

Management initiated practices does in turn affect the transfer of knowledge indirectly. Transmission channels are about having formal mechanisms in place in order for subsidiaries to get in contact with each other. As seen regarding structural social capital is the situation quite similar regarding transmission channels. However can it be noted that Daniela acts as a liaison for the organization and does connect different subsidiaries with others. Also Christian mentions that he organizes different events where people from other parts of the organization can join. It is however not evident if these people come from all around the world or only from Finland. This is however not apparent in most of the organization which means that it is uncertain if this is the case in the Finnish forest industry and what kind of implications it has on the transfer of knowledge.

The next management initiated practice is about socialization mechanisms which affects the cognitive social capital dimension. This dimension is about supporting the transfer of knowledge by limiting prejudices referring to economic, cultural or educational background (Gooderham, 2007). This can be done through schooling for instance and by being aware of differences among employees (Gooderham, 2007). As can be seen by reviewing the empirical data do the informants not say anything about socialization processes focusing on the above mentioned dilemma which

makes it difficult to analyze since it would result in subjective opinion by the writer of the thesis.

The final management initiated practice in the model is about motivational mechanisms. This practice involves tangible incentives to enhance the integration and transfer of knowledge (Gooderham, 2007). As earlier noted in the analysis does it not appear as if there are incentives to share knowledge on the one hand. On the other hand, employees seem to be motivated by the knowledge of why things are done which motivates them to share what they know, according to Daniela. Then again, these incentives are not tangible. Furthermore, it can be seen from the empirical data that the informants talks about motivational mechanisms, but none of them are referring to the transfer of knowledge or ideas with a tangible incentive.

Next to be analyzed are the external factors that affects the transfer of knowledge which are to be seen as rather fixed, according to Gooderham (2007). Regarding external dimensions that has implications on the transfer of knowledge in a multinational company is the first one that will be analyzed the physical distance dimension. This dimension is about how the spatial distance affects the structural social capital since a larger spatial distance is costly and time consuming (Gooderham, 2007). Since this theory was developed before the year 2007 is it not a far stretch to imagine that things have changed. As can be seen from the empirical data do many of the informants think that Skype and improved information systems has improved the communication with other parts of the organization. For instance Erik and Ben says that Skype has been a good way of transferring knowledge as long as they have gotten a chance to know the other person previously. As we can see does it support that the spatial distances has shrunk as result of the improved technology and does not corroborate the theory.

Cultural distance is the next external aspect to be analyzed. Cultural distance is about shared interpretations and a shared language (Gooderham, 2007). As can be seen from Erik for example does the differences in culture vary quite a lot between different parts of the organization when comparing how the culture is open in some parts and more closed in other parts. This statement by Erik supports the notion that

cultural distance affects the cognitive social capital since it leads to less shared knowledge because of a lack of similar culture.

The final external aspect of the model is about economic and educational distance. According to Gupta and Govindarajan (2000), it is easier to transfer knowledge to a subsidiary acquired from a low income country than from country with a high income. The reason for this is that a subsidiary with a higher income sees themselves as on par regarding educational level with the parent company which appears to launch the "not invented here" syndrome (Gooderham, 2007). The theory is somewhat supported by Erik for instance. Erik says that while he has been working on a new project has a coworker stationed in a poorer part of the work been very accepting of his knowledge. Erik says that the coworker has been receptive of his knowledge which has further enhanced their shared meaning. As with other theories analyzed in this study is the empirical data however too thin to make a fair argument for the theory being correct.

5.2.3.5 The dynamic capabilities driven model overall

If we look at the theory from a holistic perspective, we can see that the theory by Gooderham (2007) is mostly supported by the empirical data. If we review the above analyzed theory we can see that the capabilities driven model is confirmed by the empirical data to some extent. As seen from the analysis above are the responses regarding each aspect of tacit knowledge transfer in capabilities driven model mostly unanimous, except for the cognitive social capital dimension where there appears to be different views on the matter.

5.2.4 The SECI-model

5.2.4.1 Socialization

Next model to be reviewed is the SECI-model by Nonaka and Takeuchi (1995). In this analysis, an emphasis is put on the innovation aspect of the SECI-model. To begin with, an analysis of the socialization process will take place. According to Nonaka and Takeuchi (1995), this process is about transferring tacit knowledge by

sharing mental models, images and technical capabilities. The reality is to a large extent supporting the theory in this case. For instance, an innovation usually begins by an idea being presented to another person, according to Anders. He further explains that curious people are important in the creation of an innovation since they think about problems that can be solved while they are working. These statements supports the theory since there is an exchange of tacit knowledge during the presentation of an idea. Ben furthermore says that their exchange of ideas and proposals with customers is an ongoing process throughout the creation of an innovation. This implies that tacit knowledge is being shared through socialization since unformed ideas are exchanged between customer and business. Anders also explains that employees mostly learn by doing as they catch some knowledge here and some knowledge there by participating in projects. The other informants have accordingly similar experiences during the idea phase of an innovation which corroborates the theory since it involves the sharing of knowledge in different types of groups by socializing.

5.2.4.2 Externalization

The next process in the SECI-model is referred to as externalization. Externalization is about transferring tacit knowledge to explicit knowledge. After the new knowledge has been explicitly expressed should there no longer exist any inconsistencies in the expressed model, concept etc. (Nonaka & Takeuchi, 1995). du Plessis (2007) further argues that the tacit knowledge can be captured through IT-platforms such as discussion databases. This part of the SECI-model is at least to some extent corroborated by the empirical data. For instance, Daniela says that they have a well-defined process regarding the creation of an innovation. The process Daniela's company use correlates with the theory since it is about providing a well expressed proposal where there are numerous boxes to check before being able to submit the idea fully. Another instance of a similar way of expressing new ideas could perhaps be Anders' organization where employees have a computer system where they can contribute with ideas. It remains however unclear if the ideas has to be fully expressed or not. Regarding the other informants, it appears as if the intranets are

mostly in place to spread already completed projects and not the place where ideas are proposed. These statements do hence not correlate with the theory but at the same time do they not prove the theory wrong since it is probable that most of these organizations have a thorough process for evaluating new ideas.

5.2.4.3 Combination

The combination mode is about the sharing and distribution of explicit knowledge (Nonaka & Takecuchi, 1995). This phase of the SECI-model is further about combining the expressed knowledge in a knowledge system (Nonaka & Takeuchi, 1995). The knowledge can then further be shared through different mediums such as documents, phones or mediums (Nonaka & Takecuchi, 1995). This correlates to a large degree with the empirical data. The reason for this is that the companies interviewed to a large extent uses internal databases in order to share knowledge in the form of different projects and so on. For instance, Ben says that they have an internal database where employees can find previous projects and get in contact with the ones who have participated in the project. Daniela is another example that corroborates the use of large scale computer systems with the purpose of combining knowledge. She explains that they use a project management system in a way that enables employees to see what has been done previously and share their experiences. Regarding the contribution the combination seems to have on innovation can it be noted that the project management system in Daniela's case is used in order to learn from previous mistakes and successes which in turn evidently has a positive impact on the creation of an innovation. The theory is further supported by Erik and Ben who both says that Skype has been a relevant tool for sharing knowledge throughout the organization.

5.2.4.4 Internalization

The internalization mode is the last process in the model and is about turning the explicit knowledge seen in the previous mode into tacit knowledge that can be used by the receiver (Nonaka & Takeuchi, 1995). This mode of the model is supported to some extent by the empirical data. It is supported by Daniela's statement where she says that they utilize the system in order to facilitate the construction of new projects

by learning from earlier lessons. Also Ben says that employees can use their intranet in order to find knowledge. According to Ben, the knowledge found on the intranet can be retrieved by contacting the people participating in the project. These statement corroborates the theory in the sense that explicit knowledge gets internalized either directly, by finding the person with the knowledge who can further explain, or indirectly by using previous projects as lessons.

5.3 Analysis of innovation

In the previous part of the analysis has there been an explicit focus on the transfer of knowledge and how it works within the Finnish forest industry. In the following part will the focus be on innovation with knowledge transfer being acknowledged as a bi-product of innovation.

5.3.1 Type of innovation

To begin with, the type of innovations created within the Finnish forest industry are analyzed in order to understand what kind of challenges the industry is facing.

As can be seen by Christian's and Daniela's view on innovation is sustainability becoming an increasingly relevant area to explore. Christian does for instance mention that the company he works in focuses on finding new business opportunities and resource efficiency. He further elaborates that resource efficiency to a large extent revolves around circular economy, which the industry has been working with for a long time already, and water efficiency. Daniela further mentions that trends such as climate concerns drives the innovation needs. She elaborates by saying that customers are more aware of what kind of chemicals that are used in the products. One could thus argue that the industry is in the need of radical innovations. A radical innovation is about using an existing business model and leverage it by using new technical competencies (Pisano, 2015). The reason why there would be a need for radical innovations is that it would be a question of leveraging existing business models through the use of new knowledge. For instance does Daniela mention the packaging industry and the need for new chemicals used in the process as a result of product knowledge of the customer. The business model would thus be the same as

earlier that is selling packaging material to customers without changing how the product is used, while renewing components in the packaging material.

On the other hand, it could also be argued that there is a need and a focus in the industry towards a more architectural innovation approach. Architectural innovation is about the use of new technical competencies and an innovative business model (Pisano, 2015). Christian describes one of their innovations as being aimed at a new market where he also mentions that they had to use new technical competencies in order to create the innovation. This may talk for an architectural approach since the innovation is about finding new ways to the market and by utilizing new technical knowledge. Christian also mentions that there was an elaborate approach to finding a new business opportunity which further supports the fact that the industry may be heading towards changes regarding way of innovation. Based on the empirical data is it however difficult to argue what have caused a change although Daniela's answers may imply that a more sustainable view on business is a reason for this.

5.3.2 Open innovation

The innovation process approach that is central to this study is the open innovation paradigm. The open innovation approach is argued to be a necessity in order to stay competitive rather than a competitive advantage on its own (Faems, 2008). Open innovation is about using purposeful in and outflows of knowledge in an organization in order to accelerating internal innovation (Chesbrough, 2006). Before moving into more detail is it arguably already possible to see traits of open innovation in the Finnish forest industry based on the informants. For instance does Ben, Christian and Erik all mention that they have used external partners in order to expand their knowledge base in order to make an innovation come to life. The reason why this supports the move towards an open innovation paradigm is because they all use purposeful inflows of knowledge in order to execute an innovation. Furthermore it can, on the one hand, also be argued that the empirical data is not supporting the open innovation paradigm to a larger extent. The reason for this is that not many of the informants are talking about the use of patents for instance and the use of external ideas in this sense. Erik for instance says that their company is directly against it. On the other hand, Anders says that if it is possible to patent an innovation they may license it out.

5.3.3 Types of open innovation

5.3.3.1 Acquiring

A more detailed view of open innovation comes by comparing inbound and outbound open innovation with the empirical data. The first thing to compare is the acquiring mode of open innovation. This mode is about acquiring input from the market place into the innovation process (Dahlander & Gann, 2010). This mode of open innovation seems to be a part of the innovation process in the Finnish forest industry, according to the empirical data, at least to some extent. Christian's statement does support the notion of a pecuniary course of action taken in order to benefit innovation. Christian mentions that during the process of developing a new product did they acquire skills and knowledge that was missing in the organization from the external environment as they hired people with various skills. Ben has similar views since he says that they consulted external people with another type of knowledge base than the organization in order to start an innovation initiative. Erik does, however, say that they refrain from acquiring innovations, patents or knowledge from the external environment which does not support this mode of open innovation.

5.3.3.2 Selling

The second type of open innovation that will be analyzed is referred to as selling. Selling is about commercializing innovations by either licensing them out or by selling them all together to other firms (Dahlander & Gann, 2010). Selling is seen among the informants as an innovation approach to a small degree. As seen in the previous mode, one of the informants talks about potentially selling an innovation on the one hand. Anders says that if an innovation can be patented they may opt to license it out. On the other hand, this procedure do not seem like the norm at the company. Furthermore does Erik say that they do not work through license agreements which hence do not support the hypothesis that the Finnish forest industry would work with this type of open innovation.

5.3.3.3 Sourcing

The third type of open innovation in the theory is called sourcing. This mode of open innovation is about leveraging external ideas and technologies found by scanning the environment and creating synergies between these ideas and internal processes (Dahlander & Gann, 2010). This type of open innovation is corroborated by the empirical material. For instance, most of the informants mentions that their company have been or are involved in collaboration with universities. It can also be noted that collaboration with universities seem like an institutionalized process in many of the interviewed organizations where the company look to leverage innovations derived from universities or research institutes. For instance, Daniela argues that if a project proposal by a university or research institute is good enough will they participate. Another example that may corroborate the use of this open innovation approach could be Erik. He says that they look for complementing competencies in order to advance a project or innovation. The reason why these statements are congruent with this theory is that there is not a direct financial exchange between the different parties and that there is scouting for different competencies involved.

5.3.3.4 Revealing

The last mode to analyze is the revealing mode. This mode is about revealing internal resources for the external environment (Dahlander & Gann, 2010). The reason why an organization would do this is to evoke collaboration by revealing selective internal resources (Henkel, 2006). It does not seem like this would be the case with any of the interviewed organizations. To begin with, neither of the informants mentions any type of collaboration where internal resources would have been revealed. Furthermore, many of the informants says that there are many secrecy agreements in place during the innovation process which further goes against the theory. This is corroborated by Anders and Christian for instance who explicitly points out that secrecy agreements are put in place which implies that the

organizations in this industry do not reveal much about their internal resources on the one hand. On the other hand, Daniela says that they have experimented with so called hackathons which supports the use of this approach. However, Daniela does not point out what kind of resources they are revealing, if any at all.

5.4 Discussion on knowledge transfer and innovation

After a thorough analysis of the empirical data is a discussion about knowledge transfer and innovation necessary in order to gain an answer on the research question. In the following part will the impact knowledge transfer has on innovation first of all be discussed followed by a discussion about constraints of innovation within the Finnish forest industry. Last will a short discussion on whether the Finnish forest industry may be moving towards the open innovation paradigm or not.

5.4.1 How does knowledge transfer impact innovation?

As supported by the analysis above is it fair to say that transfer of knowledge plays an integral role in the creation of innovations in the Finnish forest industry. It can be seen from the informants that the transfer of knowledge has a place in the innovation process all the way from the phase of generating ideas to the development of a product. On a theoretical level, we can see that the SECI-model is supported to a large degree by the empirical data. This is primarily seen in the socialization mode since a few of the informants says that they receive ideas that may turn into innovations by talking with customers and internal employees. These ideas thus follows the theoretical model in the sense that tacit knowledge is shared and received which then turn into an innovation.

Furthermore, it appears as if an open culture benefits the innovation process. The reason for this is that ideas and solutions for different issues often are presented between people before an innovation goes into development. For instance is it noted that ideas are presented by customers to the organization as Daniela and Erik points out or, as Anders points out, that an idea is presented to another team member. The reason why an open culture thus may seem as beneficial is because it allows people to discuss these ideas and thoughts that may lead to innovations.

5.4.3 Is the Finnish forest industry following the paradigm shift?

Based on the analysis, it appears as if the Finnish forest industry would be applying open innovation to a large degree as defined in the theoretical chapter. It may however be argued that there still are too many factors talking against this approach. There is seemingly much secrecy involved in the innovation processes, maybe rightfully so, and how products are developed which goes against the use of the open innovation approach. On the other hand, it appears as if the use of acquiring and sourcing approaches are fairly common in the Finnish forest industry. It may thus be concluded that the Finnish forest industry is moving towards an open innovation approach but that we cannot talk about an open innovation paradigm in the industry yet.

5.4.2 Constraints regarding innovations in the industry

There seems to be some constraints regarding innovation and why it is limited to an internal approach. Some concerns noted in the analysis are, as earlier pointed out, secrecy agreements between teams inside a company as well as with external partners and culture. Since secrecy agreements prohibits people from discussing a certain matter is it logical that any ideas from such a discussion will not exist and further add to the development. Regarding culture can it be said that it has been noted that a negative attitude towards innovation leads to unwillingness to contribute with and to ideas. As explained by Christian, a negative culture towards innovation usually depends on the increased workload that typically comes with it.

6. Discussion

In this last chapter will a brief discussion follow where purpose and what could have been done differently be addressed. During the discussion on purpose, I will also reflect upon the conclusions that have been made. This chapter will, furthermore, address thoughts on future research within the area of knowledge transfer and innovation and end with thoughts on the process of writing a master's thesis.

6.1 Purpose and conclusions

In this study have I explored the Finnish forest industry and depicted how innovation processes works within the industry. The purpose of this thesis was to find out how knowledge transfer activities affects the innovation process in the Finnish forest industry. I think the purpose has been fulfilled since it clearly shows how knowledge transfer impacts innovation in the Finnish forest industry is done in the analysis. Since it is a question of processes there is, however, no straight answer to be given regarding this research question. This in turn means that it is difficult to specify exactly in what kind of situations knowledge transfer is key for innovation. This is a question that has been discussed throughout the thesis and is emphasized in chapter five. Although the situations where the transfer of knowledge seemingly has a positive impact on the innovation are not unanimous among the respondents, I have made the following conclusion: the creation of ideas are made in informal situations when there is a sense of trust and community between people. Furthermore, it can be said that different types of competences is needed throughout the innovation process, but the personal connections are still relevant in order retrieve the needed knowledge. The reason for this is that people tend to share knowledge with people they have an established connection with. This thesis has also mentioned general ways of distributing knowledge in the Finnish forest industry. People share knowledge through various means in different situations. The conclusion and, perhaps, a key take away, is that people want to meet each other in physical form before a value adding knowledge exchange between two counterparts can commence. The third and final purpose of this study was to see whether the Finnish forest industry is moving towards the open innovation paradigm or if the closed paradigm still is the dominating approach. The conclusion I have come to is that the open innovation paradigm is currently not adopted by the industry. Although, the industry has certainly taken large steps towards an open innovation approach.

6.2 Generalization of data

It ought to be said that conclusions and analysis of this qualitative material have been subjective and affected by personal opinions, partly from the author's side and partly from the informants' sides. While I strived towards being objective in the process of

writing this thesis, it is impossible that it has not been affected by personal opinions, thoughts and how I have interpreted empirical as well as theoretical data.

At this stage of the study is it important to note that the data in this thesis alone is too thin to make generalizable conclusions about how the Finnish forest industry creates innovations and how their processes works. However, it is probably possible to draw parallels from this study to how processes are working in reality. Furthermore, more studies have to be done in order to give a more coherent answer on the research question.

6.3 What could have been done differently?

As with all studies there are things that could have been done differently or that could have been done better. Hence, a few method problems have to be revised regarding the execution of this study.

To begin with, it can be noted that the theoretical framework can be regarded as too wide for the scope of this thesis. For instance, the dynamic capabilities driven model by Gooderham (2007) may be seen as superfluous. The reason for this is that the model was difficult to fit in the study in regard to questions asked of the informants and the difficulty of connecting the model to the innovation theories. Since questions that did not correlate directly with the model was asked of the informants were insufficient answers also given in response. The model was also difficult to fit in with the theory on open innovation since different factors are taken into consideration in the different models. This could have been done better by limiting the number of theories to one theory on knowledge transfer and one theory on innovation.

Another problem regarding the execution of the thesis is the chosen subject of innovation within the context of the Finnish forest industry. The reason for this is that the processes involves much secrecy which means that informants mostly were unable to describe through example. This in turn leads to a loss of context in empirical data. This is a difficult issue to get around, but one way may have been to

choose informants from smaller organizations since secrecy agreements may not be in place or because innovations are done in another way where less crucial information have to be revealed during the explanation of an example.

The last matters to mention regarding improvements or what could have been done differently are time and language. Since three out of five informants were interviewed in English, which is not their mother tongue, may opinions been more difficult to articulate which results in thoughts and conclusions that are not fully developed.

6.4 Future research

Regarding future research, it can first of all be said that the Finnish forest industry makes a good case for understanding innovation processes and should thus be further explored based on the industry's ability to come up with new processes and products. Furthermore, future research should verify the findings of this study through larger and quantifiable studies. The reason for this is to confirm whether the findings in this paper is a matter of coincidence or whether the knowledge transfer actually do lay at the core of innovation in the industry. Future research ought to further explore in which situations and what kind of knowledge that sparks innovation. The reason for this is that this would create the basis for an innovation framework that can help researchers understand innovation and how it works.

6.5 End words

The process of writing a master's thesis has been both interesting as well as demanding. My ability to write an academic text and how to structure it has improved as well as my ability to understand complex processes. Furthermore, I have seen how theory can be reflected in reality. During the study, I have noticed how complicated and abstract innovation processes are. Through the empirical data as well as the theoretical data, I have learnt how important knowledge is for organizations and the importance of sharing knowledge in the innovation process.

7. Swedish summary

Kunskapsöverföring och innovation inom den finska skogsindustrin

I denna avhandling har jag avsett skriva om hur överföringen av kunskap påverkar innovationsförmågan inom den finska skogsindustrin. Avhandlingens syfte har varit att ta reda på hurdan inverkan överföringen av kunskap har på innovation inom en

industri som är i ständigt behov av innovativa lösningar. Ratnasingam et al, (2013) menar att det finns ett behov av innovation och kreativitet gällande hållbara produkter inom skogsindustrin. Ovanstående påstående, bland annat, ligger som grund för valet av ämne till denna studie då skogsindustrin måste vara innovativ för att hållas konkurrenskraftig och klara av de förändringar och krav som den externa miljön har. Ett delsyfte av studien har varit att ta reda på om, och hur, den finska skogsindustrin använder sig av så kallad öppen innovation. Orsaken till varför denna tankeställning är intressant beror på att Chesbrough (2003) anser att öppen innovation är effektivare än stängd innovation.

Teori som ligger som grund för avhandlingen behandlas från två olika perspektiv. Dessa perspektiv utgörs av de teoretiska helheterna kunskapsledning samt innovation. Inom respektive teoriområde har avgränsningar gjorts till kunskapsöverföring och öppen innovation. De teorier som lagts störst tyngdpunkt på framförs av Nonaka och Takeuchi (1995), och Chesbrough (2003). Med andra ord utgörs de teoretiska helheterna som tagits upp i denna avhandling av kunskapsöverföring och öppen innovation. Dessa teoriområden har valts eftersom jag anser att de skapar den teoretiska bakgrund som krävs för att ta reda på hur överföringen av kunskap påverkar skapandet av innovationer inom de företag jag har intervjuat.

Studiens metodologiska bakgrund förklaras i detta stycke. Studien är explanativ. Detta innebär att djupare förståelse och kunskap söks genom att beskriva och förklara (Björklund & Paulsson, 2003). Orsaken till detta val är att det finns en del tidigare forskning inom både kunskaps ledning och innovation vilket innebär att denna studie strävar efter att förstå kunskapsöverföring och innovation på ett djupare plan. Studien har utförts deduktivt. Detta innebär att utgångspunkten ligger i teorin varpå det empiriska materialet verifieras genom teori (Björklund & Paulsson, 2016). Data består av primära- och sekundära data. Sekundära data har främst skaffats från vetenskapliga artiklar och böcker. Sekundära data har samlats in genom fem stycken semistrukturerade intervjuer. Orsaken till detta val av datainsamlings metod är att metoden gör det möjligt för informanterna att förklara ingående om olika processer samtidigt som diskussionen håller sig till forskningsfrågan. Intervjuerna har gjorts med fem stycken personer från fyra olika företag verksamma inom den finska

skogsindustrin. Totalt kontaktades 15 personer inom industrin varav åtta personer svarade. Fem av dessa åtta svarande valde att ställa upp på intervju. Dessa fem informanter var alla i seniora positioner vid intervjutillfällena där de arbetade med frågor relaterade till antingen affärsutveckling, innovation eller båda två. De intervjuade har förblivit anonyma eftersom det har ansetts att det empiriska materialet på detta sätt blir objektivare, vilket i sin tur leder till en mera objektiv studie. Tre av dessa fem intervjuer har utförts på engelska medan de övriga två intervjuerna har utförts på svenska. Samtliga intervjuade var anställda av bolag listade på börsen och verksamma inom den finska skogsindustrin vid tiden då intervjuerna utfördes.

I analysen har det empiriska materialet blivit jämfört med det teoretiska materialet för att få svar på forskningsfrågan. I denna del har informanternas åsikter och erfarenheter jämförts systematiskt med det teoretiska materialet för att besvara forskningsfrågan.

I sista kapitlet har problem angränsande till studiens utförande och resultaten av studien tagits upp och diskuterats. Innan resultaten av studien presenteras är det värt att ge en kort beskrivning av de problem som har uppstått i denna studie. Till att börja med kan det noteras att den teoretiska referensramen kan anses vara aningen för bred. Med detta menas att en del av teorin om kunskapsöverföring skulle kunna ha uteblivit för att skapa en bättre studie. Mera specifikt så kunde teori om kunskapsöverföring i multinationella företag ha uteblivit då dessa aspekter fick väldigt lite utrymme i empirin. Trots att de medverkande företagen var multinationella intervjuades enbart personer anställda i Finland vilket innebar att svaren var svåra att analysera i förhållande till teorin. Ett annat problem gällande utförandet av denna avhandling var valet av ämne. Med tanke på att innovation och processer kopplade till innovation är ett relativt sekretess belagt område för dem som arbetar inom industrin kan viss information ha uteblivit från informanternas sida. T.ex. har information som använts i analysen blivit tagna utanför kontext då informanter haft svårt att dela med sig av sina erfarenheter via berättelser då de inte haft möjlighet att beskriva genom exempel. Det sista problemområdet gällande exekveringen av studien var tid och språk. Då informanterna hade relativt lite tid i förhållande till antalet frågor som ställdes blev resultatet att deras synpunkter inte

utvecklades fullt ut. Detta innebar i sin tur att det empiriska materialet blev svagt gällande vissa frågor vilket påverkade analysen negativt. Angående språket kan det anses att de personer som inte intervjuades på sitt modersmål (finska) hade svårt att artikulera sina åsikter. Detta ledde även till luckor i det empiriska materialet.

Resultaten bekräftar i helhet hypotesen, det vill säga att kunskapsöverföring har en betydande roll i skapandet av innovationer. Detta syns t.ex. i olika samarbeten med externa parter så väl som i interna samarbeten mellan olika anställda. I analysen framgår det kanske framför allt att idéer uppstår genom överföring av kunskap mellan anställda inom en organisation eller genom överföring av kunskap mellan externa parter och anställda i en organisation. I dessa utbyten av kunskap kan det anses att en etablerad relation är viktigt för att kunskapsöverföringen ska ske framgångsrikt, dvs. att ha träffats fysiskt skapar en känsla av förtroende och pålitlighet vilket gör att människor vill dela med sig av kunskap. Övriga situationer där överföringen av kunskap varit av nytta för skapandet av innovationer är då en viss typ av kompetens behövts eller då ett annat perspektiv har varit till nytta för att förverkliga en idé. Även i detta skede har jag dragit slutsatsen att en etablerad relation är viktig. Ett delsyfte har även varit att ta reda på om den finska skogsindustrin använder sig av öppen innovation för att kommersialisera innovationer. Slutsatsen av analysen är att den finska skogsindustrin sakta rör sig mot att använda öppen innovation. T.ex. genom att utnyttja externa resurser, så som kunder och konsulter, för att utveckla processer och produkter. Detta kan jämföras med tidigare då informanter ansåg att de gick till kunden med en produkt i det skede de var helt klara med den.

8. References

Alvesson, M., & Kärreman, D. (2001). Odd couple: Making sense of the curious concept of knowledge management. *Journal of Management Studies, 38*(7), 995-1018. doi:10.1111/1467-6486.00269

Anil K. Gupta, & Vijay Govindarajan. (2000). Knowledge flows within multinational corporations. *Strategic Management Journal, 21*(4), 473-496. doi:10.1002/(SICI)1097-0266(200004)21:4<473::AID-SMJ84>3.0.CO;2-I

Björklund, M., & Paulsson, U. (2003). *Seminarieboken*. Lund: Studentlitteratur. Retrieved from http://libris.kb.se/resource/bib/8953765

Blankenship, S. S., & Ruona, W. E. A. (2009). Exploring knowledge sharing in social structures.*11*(3), 290-306. Retrieved from http://www.econis.eu/PPNSET?PPN=610392816

Bryman, A., & Nilsson, B. (2002). *Samhällsvetenskapliga metoder* (1. uppl. ed.). Malmö: Liber ekonomi. Retrieved from http://libris.kb.se/resource/bib/8770897

Chen, J., Zhu, Z., & Yuan Xie, H. (2004). Measuring intellectual capital: A new model and empirical study. *Journal of Intellectual Capital, 5*(1), 195-212. doi:10.1108/14691930410513003

Chesbrough, H., VANHAVERBEKE, W., & West, J. (2006). *Open innovation: Researching a new paradigm* Oxford University Press. Retrieved from http://hdl.handle.net/1942/1752

Chesbrough, H. (2003). *Open innovation. the new imperative for creating and profiting from technology*. Boston: Harvard Business School Press. Retrieved from https://www.epo.org/index.html

Clayton M Christensen, Michael E Raynor, & Rory McDonald. (2017). What is disruptive innovation? *Accountancy SA,* , 24-26. Retrieved from https://search.proquest.com/docview/1967324647

Dahlander, L., & Gann, D. M. (2010). How open is innovation? *Research Policy, 39*(6), 699-709. doi:10.1016/j.respol.2010.01.013

Davenport, T. H., & Prusak, L. (1998). *Working knowledge*. Boston, Mass: Harvard Business School Press. Retrieved from http://www.econis.eu/PPNSET?PPN=235829277

Dewar, R. D., & Dutton, J. E. (1986). The adoption of radical and incremental innovations: An empirical analysis. *Management Science, 32*(11), 1422-1433. doi:10.1287/mnsc.32.11.1422

du Plessis, M. (2007). The role of knowledge management in innovation. *Journal of Knowledge Management, 11*(4), 20-29. doi:10.1108/13673270710762684

Eric N Hansen. (2010). The role of innovation in the forest products industry. *Journal of Forestry, 108*(7), 348. Retrieved from https://search.proquest.com/docview/762232461

Faems, D. L. M. (2008). *Open innovation: Researching a new paradigm* Oxford University Press. Retrieved from http://hdl.handle.net/1942/15064

Finnish Forest Industry. (n.d.). Forest Industry. Retrieved 2019-09-30 from https://www.forestindustries.fi/statistics/forest-industry/

Forest Cluster Research Strategy. (2010). *The world's leading forest cluster 2030*. Finnish Forest Industries Federation.

Furrer, O., Thomas, H., & Goussevskaia, A. (2008). The structure and evolution of the strategic management field: A content analysis of 26 years of strategic management research. *International Journal of Management Reviews, 10*(1), 1-23. doi:10.1111/j.1468-2370.2007.00217.x

Gooderham, P. N., Grøgaard, B., & Nordhaug, O. (2013). *International management : Theory and practice*. Cheltenham, Gloucestershire: Edward Elgar Publishing Limited. Retrieved from https://ebookcentral.proquest.com/lib/[SITE_ID]/detail.action?docID=1220184

Gooderham, P. N. (2007). Enhancing knowledge transfer in multinational corporations: A dynamic capabilities driven model. *Knowledge Management Research & Practice, 5*(1), 34-43. doi:10.1057/palgrave.kmrp.8500119

Grant, R. M. (2010). *Contemporary strategy analysis* (7. ed., repr. with corr. ed.). Chichester: Wiley.

Grant, R. M. (2013). *Contemporary strategy analysis* (8. ed., reprint with corr. ed.). Chichester: Wiley.

Henkel, J. (2006). Selective revealing in open innovation processes: The case of embedded linux. *Research Policy, 35*(7), 953-969. doi:10.1016/j.respol.2006.04.010

Henrik Bresman, Julian Birkinshaw, & Robert Nobel. (1999). Knowledge transfer in international acquisitions. *Journal of International Business Studies, 30*(3), 439-462. doi:10.1057/palgrave.jibs.8490078

Herrmann, P. (2005). Evolution of strategic management: The need for new dominant designs. *International Journal of Management Reviews, 7*(2), 111-130. doi:10.1111/j.1468-2370.2005.00108.x

Hislop, D. (2013). *Knowledge management in organizations* (3. ed. ed.). Oxford: Oxford Univ. Press. Retrieved from http://bvbr.bib-bvb.de:8991/F?func=service&doc_library=BVB01&local_base=BVB01&doc_number=025911117&sequence=000002&line_number=0001&func_code=DB_RECORDS&service_type=MEDIA

Horwitch, M., & Armacost, R. (2002). Helping knowledge management be all it can be. *Journal of Business Strategy, 23*(3), 26-31. doi:10.1108/eb040247

Huang, M., Chiu, Y., & Lu, T. (2013). Knowledge governance mechanisms and repatriate's knowledge sharing. *Journal of Knowledge Management, 17*(5), 677-694. Retrieved from http://www.econis.eu/PPNSET?PPN=771769172

Johnson, D. (2001). What is innovation and entrepreneurship? lessons for larger organisations. *Industrial and Commercial Training, 33*(4), 135-140. doi:10.1108/00197850110395245

Lamberg, J., & Laurila, J. (2005). Materializing the societal effect: Organizational forms and changing patterns of dominance in the paper industry. *Organization Studies, 26*(12), 1809-1830. doi:10.1177/0170840605059158

Lamberg, J., & Ojala, J.Co-evolution of institutions and strategies: Finnish pulp and paper industry 1918-1995. *Nordiske Organisasjonsstudier, 7*(3-4), 53-86.

Leifer, R., McDermott, M., O'Connor, G. C., Peters, L. S., Rice, M. & Veryzer, R. W. (2000). *Radical Innovation: How Mature Companies can Outsmart Upstarts*. Harvard Business School Press. Boston, Massachusetts.

Linstead, S. (2004). *Managing Culture*. In Linstead, S., Fulop, L., & Lilley, S. (2004). *Management and organization*. New York: Palgrave Macmillan. Retrieved from http://www.loc.gov/catdir/description/hol052/2003054921.html

MartÍnez-Ros, E., & Orfila-Sintes, F. (2009). Innovation activity in the hotel industry. *Technovation, 29*(9), 632-641. doi:10.1016/j.technovation.2009.02.004

Michael Earl. (2001). Knowledge management strategies: Toward a taxonomy. *Journal of Management Information Systems, 18*(1), 215-233. doi:10.1080/07421222.2001.11045670

National Science Foundation, National Center for Science and Engineering Statistics 2019. *National Patterns of R&D Resources:2016–17 Data Update.* NSF 19-309. Alexandria, VA. [reffered: 3.10.2019] Available at https://ncses.nsf.gov/pubs/nsf19309.

Näsi, J., Sajasalo, J. & Sierilä, P. (2001). A game-playing perspective on industry level megachange - an analysis of concentration in the finnish forest sector 1985-1995. Retrieved from https://tutcris.tut.fi/portal/en/publications/a-gameplaying-perspective-on-industry-level-megachange--an-analysis-of-concentration-in-the-finnish-forest-sector-19851995(c0497090-295c-44d4-995a-7dd14cf736af).html

Official Statistics of Finland (OSF): Research and development [e-publication]. ISSN=2342-6721. 2007. Helsinki: Statistics Finland [referred: **15.8.2019**]. Access method: http://www.stat.fi/til/tkke/2007/tkke_2007_2008-10-23_tie_001_en.html

Pasi Sajasalo. (1999). The changing role of marketing associations in the internationalization of the finnish forest industry. *Allied Academies International Conference. Academy of Marketing Studies. Proceedings, 4*(2), 5. Retrieved from https://search.proquest.com/docview/192410738

PISANO, G. P. (2015). You need an innovation strategy. *Harvard Business Review, 93*(6) Retrieved from http://parlinfo.aph.gov.au/parlInfo/search/summary/summary.w3p;query=Id:%22library/jrnart/4024103%22

Pitt, M., & MacVaugh, J. (2008). Knowledge management for new product development. *Journal of Knowledge Management, 12*(4), 101-116. doi:10.1108/13673270810884282

Polanyi, M. (1962). *Personal knowledge*. London: Routledge.

Porter, M. E., & Linde, C. v. d. (1995). "Toward a new conception of the environment-competitiveness relationship". *The Journal of Economic Perspectives, 9*(4), 97. Retrieved from https://search.proquest.com/docview/1300200089

Rahman, A. A., Hamid, U. Z. A., & Chin, T. A. (2017). Emerging Technologies With Disruptive Effects: A Review. Perintis eJournal, 7(2), 111-128. Retrieved from https://www.academia.edu/35467874/Emerging_Technologies_with_Disruptive_Effects_A_Review

RATNASINGAM, J., WAI, L. T., THANASEGARAN, G., IORAS, F., VACALIE, C., COMAN, C., & WENMING, L. (2013). Innovations in the forest products industry: The malaysian experience. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca, 41*(2), 601. doi:10.15835/nbha4129339

Rebecca M. Henderson, & Kim B. Clark. (1990). Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly, 35*(1), 9-30. doi:10.2307/2393549

Rusko, R. (2011). Exploring the concept of coopetition: A typology for the strategic moves of the finnish forest industry. *Industrial Marketing Management, 40*(2), 311-320. doi:10.1016/j.indmarman.2010.10.002

Shameek Konar, & Mark A. Cohen. (2001). Does the market value environmental performance? *The Review of Economics and Statistics, 83*(2), 281-289. doi:10.1162/00346530151143815

Souto, J. E. (2015). Business model innovation and business concept innovation as the context of incremental innovation and radical innovation. *Tourism Management, 51*, 142-155. doi:10.1016/j.tourman.2015.05.017

Toppinen, A., Pätäri, S., Tuppura, A., & Jantunen, A. (2017). The european pulp and paper industry in transition to a bio-economy: A delphi study. *Futures, 88*, 1-14. doi:10.1016/j.futures.2017.02.002

West, J., West, J., Bogers, M., & Bogers, M. (2017). Open innovation: Current status and research opportunities. *Innovation, 19*(1), 43-50. doi:10.1080/14479338.2016.1258995

Zack, M. H. (2003). Rethinking the knowledge-based organization. *MIT Sloan Management Review, 44*(4), 67. Retrieved from https://search.proquest.com/docview/224959951

9. Appendix 1: Interview guide

1. Can you tell me a bit about yourself?
    a. Education?

   b. How did you end up in this company?
2. About the position
   a. What does a normal work day look like?
   b. Tell a bit about your position/role in this company
3. Tell me a bit about this company
   a. What do you do?
   b. What does the structure look like?
      i. Size
      ii. History
      iii. In relation to other companies
         1. Competitors
         2. Suppliers
         3. Costumers
4. Tell me a bit about the leadership within this company
   a. How would you define the leadership/ the way of leading in this organization?
   b. What is the organization culture like?
   c. How do you cooperate in this company?
   d. How do you advance within this organization?
   e. How are the employees motivated in this company?
5. What is innovation to you? What does innovation mean to you
6. What kind of innovations are you creating?
7. Tell me about your latest innovation (process, product, service), how did it occur/ come about?
   a. Explain the process
   b. What happens when the process ends?
      i. Feedback loop etc.(?)
8. Tell me about the most important components in the creation of an innovation
   a. People within the organization
   b. Collaborators (other companies within the same industry, costumers, other companies (suppliers etc.)
   c. Why these components?
9. What does it look like when an innovation does not work?
   a. How does the leadership / coworkers receive it?
   b. How do you learn from the mistakes?
10. What is it that limits an innovation from succeeding?
11. What kind of thoughts does the word knowledge bring to your mind?
12. What do you regard as knowledge in this company?
13. How do you talk about knowledge?
   a. The importance
14. How important is knowledge?
   a. To you?
   b. To the organization?
15. What kind of knowledge do you share?
   a. How do you share knowledge among each other?
   b. In what kind of situations?

        i. Processes etc.?
        ii. (recurring meetings, educational days, coffee room discussions, lunch within teams or similar?

16. In what kind of situations is knowledge shared?
    a. Your knowledge?
    b. Employees in general?
17. How is knowledge from one part of the organization applied to another part of the organization?
    a. Have this lead to new ideas?
18. How do you develop the knowledge in your organization?
    a. How do you get new knowledge into the organization?
    b. (recruiting, university cooperation and so forth?)
19. Has the sharing of knowledge made the organization more competitive?
    a. If yes, how so? In which way?
        i. (innovations, improvements, higher competence and so on)